

***FINAL***

**California Dispersant Plan and  
Federal On-Scene Coordinator (FOSC)  
Checklist**

**for**

**California Federal Offshore Waters**

**Fall 2008**

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We relied extensively on work already completed by other authors and institutions. Leigh Stevens of Cawthron Institute, New Zealand, led the way by allowing us to use his “Oil Spill Dispersants: Guidelines for Use in New Zealand” as an extremely helpful model for our document. We also drew from various dispersant guidelines provided by Regional Response Teams throughout the U.S., dispersant guidelines published by ExxonMobil, the Cutter Information Corporation’s “Oil Spill Dispersants: From Technology to Policy”, the “Assessment of the Use of Dispersants on Oil Spills in California Marine Waters” by S.L. Ross, and various oil spill job aids available from the NOAA web site. Please see the References Cited section in this document for the full citations.

Beyond the use of these reports was the steadfast assistance of those we worked with in our own agencies and those on the Los Angeles Area Committee, dispersant subcommittee, dispersant workgroups, and various interested parties watching and assisting from outside the immediate working groups. Randy Imai of OSPR provided the charts in this report, Al Allen (Spilltec) provided the information, figures and formulas for dispersant dosage rates and relating those rates to dispersant application systems, and the oil spill clean-up cooperatives in California provided updated information on dispersant application resources. Members of the Los Angeles workgroups reviewed early drafts of this document, with John Day (Santa Barbara County) and Craig Ogawa (Minerals Management Service) providing especially helpful comments along the way. Ben Waltenberger (NOAA), Ken Wilson (OSPR), Melissa Boggs (OSPR) and Ellen Faurot-Daniels (CCC) pitched in to draft the Wildlife Aerial Observation Protocols, and Melissa Boggs led the workgroup addressing public outreach.

We also extend particularly heartfelt thanks our colleagues in our own agencies who supported our efforts all along the way, and to the members of the Regional IX Regional Response Team and the U.S. Coast Guard who had the first vision of a California Dispersant Plan.

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## **OVERVIEW**

### **PRE-APPROVAL ZONES**

#### **Purpose and authority**

This document outlines the Dispersant Use Plan for state and federal marine waters within the Region IX Regional Response Team (RRT) area of operations.

This policy authorizes and provides guidelines to allow the federally pre-designated U. S. Coast Guard (USCG) Federal On-Scene Coordinator (FOSC) and/or the Unified Command to use dispersants in a timely manner to: 1) prevent or substantially reduce a hazard to human life; 2) minimize the adverse environmental impact of the spilled oil; and 3) reduce or eliminate the economic or aesthetic losses of recreational areas. This dispersant use plan will address the use of dispersants for each of two zones: Dispersant Pre-Approval Zones; and, RRT Approval Required Zones.

Subpart J of the National Contingency Plan (NCP) provides that the FOSC, with the concurrence of the EPA representative to the Regional Response Team and the State with jurisdiction over the navigable waters threatened by the oil discharge, and in consultation with the U.S. Department of Commerce (DOC) and U.S. Department of the Interior (DOI) natural resource trustees, when practicable, may authorize the use of dispersants on oil discharges; provided, however, that such dispersants are listed on the NCP Product Schedule. The EPA has been delegated authority to maintain a schedule of chemical countermeasures that may be authorized for oil discharges in accordance with procedures set forth in Section 300.900 of the NCP.

The USCG Eleventh District Commander has pre-designated the three USCG Captains of The Port (COTP) as the FOSCs for oil discharges in their respective COTP zones (as defined in 33 CFR Part 3 and subject to joint response boundary agreements with EPA described in Section 1400 of the three California Area Contingency Plans), and has delegated to each COTP the authority and responsibility for compliance with the Federal Water Pollution Control Act (FWPCA).

The Governor of the State of California has designated the Administrator of the Department of Fish and Game Office of Oil Spill Prevention and Response (CDFG-OSPR) the authority and responsibility for providing approval for the use of dispersants for control of oil spills in or affecting California waters.

The USCG, EPA, DOI, DOC/NOAA, and CDFG-OSPR agree that one of the primary methods of controlling discharged oil shall be the physical removal of the oil by mechanical means. These agencies recognize that in certain instances timely, effective physical containment, collection and removal of the oil may not be possible, and the use of dispersants, alone or in conjunction with other removal methods, may be considered to minimize substantial threat to public health or welfare, or minimize serious environmental damage. This document establishes the policy under which dispersants listed on the NCP Product Schedule may be used in Federal waters off California by FOSCs.

#### **The response planning process**

The National Oil and Hazardous Substances Pollution Contingency Plan (National Contingency Plan –



NCP) directs the RRTs and Area Committees to address, as part of their planning activities, the desirability of using appropriate dispersants, surface washing agents, surface collecting agents, bioremediation agents, or miscellaneous oil spill control agents listed on the NCP Product Schedule, and the desirability of using appropriate burning agents. Regional Contingency Plans and Area Contingency Plans shall, as appropriate, include applicable authorization plans and address the specific contexts in which such products should and should not be used (40 CFR § 300.910). Additional information on how this plan was directed and developed is included in [Appendix I](#).

### **What is in the California Dispersant Plan (CDP)**

In its current form, the CDP includes an updated Federal On-Scene Coordinator (FOSC) checklist, and a series of discussion and decision boxes to facilitate the FOSC decision. To provide the greatest likelihood that this CDP will not only train but serve the Coast Guard regardless of which personnel are in the FOSC position in the future, it includes a number of appended materials that put oil, dispersant, natural resource and response resource information close at hand in one document. The CDP also includes a number of blank forms that can be removed, duplicated as needed, and used in the field during a spill response to provide orderly and timely information to the FOSC as the spill unfolds and a decision whether or not to use dispersants becomes imminent. Other report forms document bird and mammal presence, dispersant application methods, and dispersant effectiveness.

This document is not a lengthy discussion of the relative merits of any response tool, of dispersant or dispersed oil toxicity, or the details of Net Environmental Benefit Analyses (although key points on several of these topics is embedded in the Discussion Notes on the FOSC checklist, or in the appendices). It is not a primer on oil spill response in general, or the Incident Command System. All this information is available from other resources, much of which was considered in developing the zone recommendations and CDP. This CDP instead assumes that an oil spill has occurred and all agency notifications have been made, various response agencies are on scene and using the Incident Command System to structure the response, and that dispersant use is under active consideration by the FOSC. This CDP takes over from there, offering tools to the FOSC to guide that decision.

This CDP primarily focuses on the federal offshore waters that have been designated as “pre-approved” for dispersant use. To date, this includes the waters 3 – 200 nautical miles from shore, not within a National Marine Sanctuary, and not within 3 miles of the California-Mexico border. This CDP also addresses waters closer than 3 miles from shore, within a National Marine Sanctuary, and within 3-miles of the California-Mexico borders, under the RRT Approval Process.

This CDP is a central, portable repository of all information that will guide the FOSC in a dispersant-use decision for pre-approval areas in federal offshore waters, regardless of which COTP pre-approval area the spill occurs and for which dispersants are being considered.

## **Quick Guide to Forms, Worksheets and Checklists**

The CDP is designed primarily to assist the FOSC in making a dispersant use decision at the time of an incident. Many forms, worksheets, and checklists are included as a part of the CDP to facilitate information gathering, decision-making and providing supporting documentation, as necessary. These worksheets and forms should assist the Unified Command in making a dispersant use decision, not hinder the process with unnecessary paperwork.

As a part of the dispersant pre-approval zone decision-making process, please use the quick guide to forms, worksheets and checklists outlined below.

### **1) Dispersant Assessment Worksheet                      Not Required by RRT**

This document was designed to assist in the gathering and organization of pertinent information necessary to make a dispersant use decision.

### **2) Pre-Approval Zone Dispersant Use Checklist                      Required by RRT**

This checklist was designed to provide an overview of the pre-approval decision-making process and to provide a “dispersant decision summary” for the Incident, detailing the decisions made. Once this form is completed and the FOSC decides to use dispersants, the checklist should be faxed to the RRT as soon as feasible.

### **3) Dispersant Pre-approval Record of Decision                      Required by RRT**

This form was designed to provide a record of decision regarding the evaluation and authorization of dispersant use, consistent with the pre-approval criteria provided in the “pre-approval zone dispersant use checklist.” The record of decision is to be signed by all members of the Joint Unified Command and should be faxed with the dispersant use checklist to the RRT as soon as feasible.

### **4) Checklist Documentation and Support Form                      Not Required by RRT** **Boxes #1 - #12**

This form was designed as a support tool to evaluate the information required in the pre- approval zone dispersant use checklist. This form guides the user through each decision- making point, allowing evaluation of each question that is a part of the dispersant use decision-making process. This form also cross-references the appendices, as needed, where additional information can be found.

## DISPERSANT ASSESSMENT WORKSHEET

(Two pages)

**Information gathered to complete this form will facilitate the dispersant pre-approval use determination; complete as much as possible without inadvisably delaying a dispersant use decision.**

**This report made by:** \_\_\_\_\_ **Organization:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Time:** \_\_\_\_\_  
**Phone:** ( ) \_\_\_\_\_ **Fax:** ( ) \_\_\_\_\_ **Mobile:** ( ) \_\_\_\_\_ **Pager:** ( ) \_\_\_\_\_

**On-Scene Commander:** \_\_\_\_\_ **Agency:** \_\_\_\_\_  
**Phone:** ( ) \_\_\_\_\_ **Fax:** ( ) \_\_\_\_\_ **Mobile:** ( ) \_\_\_\_\_ **Pager:** ( ) \_\_\_\_\_

**Caller:** \_\_\_\_\_ **Organization:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Time:** \_\_\_\_\_  
**Phone:** ( ) \_\_\_\_\_ **Fax:** ( ) \_\_\_\_\_ **Mobile:** ( ) \_\_\_\_\_ **Pager:** ( ) \_\_\_\_\_  
**Street:** \_\_\_\_\_ **City:** \_\_\_\_\_ **State:** \_\_\_\_\_ **Zip Code:** \_\_\_\_\_

**OES Control #** \_\_\_\_\_ **NRC #** \_\_\_\_\_

### SPILL

Date of spill: _____ (month/day/year)	Time of spill: _____ (PST, 24-hr clock)
Location: Latitude: _____ N	Longitude: _____ W
Spill source and cause: _____	
Amount spilled: _____ (gal or bbl)	Type of release:      Instantaneous      Continuous
Flow rate if continuous flow (estimate): _____	
Oil name: _____	API: _____      Pour point: _____ (°F)
Information source: _____	

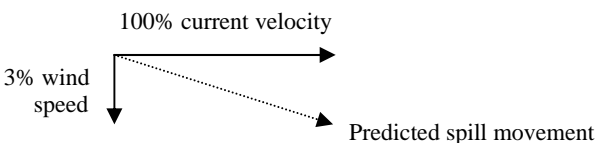
### ON-SCENE WEATHER, CURRENTS AND TIDES

(If not immediately available contact NOAA Scientific Support Coordinator (206-321-3320) or other resources noted in [Appendix A](#)).

Wind (from) direction: _____	Next low tide: _____ (ft) at _____ (hrs)
Wind speed: _____ (knots)	Next high tide: _____ (ft) at _____ (hrs)
Current velocity: _____ (kts)	Current (to) direction: _____ (°true/magnetic)
Predicted slick speed: _____ (kts)	Predicted slick direction: _____ (°true magnetic)
Visibility: _____ (nautical miles)	Ceiling: _____ (feet)      Sea state: _____ (wave height in feet)
Information source: _____	

### PREDICTING SPILL MOVEMENT

Plot spill movement on appropriate nautical chart. Using the information from the box above, predict slick direction and speed using 100% of current velocity and 3% of wind speed.



Estimated distance to shore/sensitive area: \_\_\_\_\_ (nm)  
Estimated time to shore/sensitive area: \_\_\_\_\_ (hrs)

## ESTIMATING OIL SPILL VOLUME

### Extent of spill:

- (a) Length of spill \_\_\_\_\_(nm) x Width of spill \_\_\_\_\_(nm) = Total spill area \_\_\_\_\_(nm<sup>2</sup>)
- (b) Estimate what proportion (%) of the total spill area is covered by oil: \_\_\_\_\_ (Express as decimal, % x 100)
- (c) Estimate slick area: \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_  
Total slick area (a) % oil cover (b) Estimated slick area

### Estimated spill volume:

You can make this estimate using any of the following approaches:

- Get a thickness estimate from the ADIOS oil weathering model (call the NOAA SSC (206-321-3320) for assistance);
- Generate your own volume estimate of spilled oil and the area it covers (convert both volume and area to metric units and then divide the volume by the area to estimate the thickness. Use the unit conversions found in [Appendix K](#)). Convert thickness to millimeters to use [Appendix D.1](#)).
- Use your knowledge of the approximate number of barrels of oil or emulsion per acre of slick.

## POTENTIAL RESOURCE IMPACTS

Using the predictive spill and weather information from the boxes above, ADIOS, the NOAA SSC, other RRT trustee agencies, aerial wildlife observers and regional resource information noted in [Appendix B](#), briefly describe potential coastal areas and resources that could be impacted from this spill.

## DISPERSANT SPRAY OPERATION

Information from [Appendices C.5 – C.8 and D.1](#) will be helpful.

Dispersant spray contractor name: _____		Street: _____
Dispersant name: _____	Quantity available: _____	City: _____
		State: _____ Zip Code: _____
		Phone: ( ) _____
Platform: Aircraft type: _____	Multi-engine _____	Single-engine _____
Boat type: _____		
Other: _____		
Dispersant load capability (gal): _____		

Estimate:

“Window of opportunity” for getting dispersant on the oil (App. C-10) \_\_\_\_\_ (hrs from first report of spill)

Number of daylight hours available for first day of dispersant application: \_\_\_\_\_ (hrs from first report of spill)

Time to first drop on the oil: \_\_\_\_\_ (hrs from first report of spill)

Can dispersants to be effective after day one of the spill? YES / NO / Cannot determine at this time  
(circle one)

Note: It might be appropriate to conduct a small dispersant test before proceeding to a full application.

# PRE-APPROVAL ZONE DISPERSANT USE CHECKLIST

### Pre-Approval Zones

#### Dispersant Decision Summary

Spill location: \_\_\_\_\_

FOSC Name: \_\_\_\_\_

FOSC Signature: \_\_\_\_\_

Box	Decision	Time:	Date:	Initials:
1	Yes/No	_____	_____	_____
2	Yes/No	_____	_____	_____
3	Yes/No	_____	_____	_____
4	Yes/No	_____	_____	_____
5	Yes/No	_____	_____	_____
6	Yes/No	_____	_____	_____
7	Yes/No	_____	_____	_____
8	Yes/No	_____	_____	_____
9	Yes/No	_____	_____	_____
10	Yes/No	_____	_____	_____
11	Yes/No	_____	_____	_____
Run 2 _____				
Run 3 _____				
Run 4 _____				
Run 5 _____				
Run 6 _____				
All done _____				
12	Do not use	_____	_____	_____

#### Supplemental Decisions:

1a Yes/No \_\_\_\_\_

1b Yes/No \_\_\_\_\_

5a Yes/No \_\_\_\_\_

5b Yes/No \_\_\_\_\_

6a Yes/No \_\_\_\_\_

6b Yes/No \_\_\_\_\_

7a Yes/No \_\_\_\_\_

7b Yes/No \_\_\_\_\_

#### Record of Decision:

If dispersant use is approved, sign and fax the Dispersant Pre-Approval Record of Decision with this Summary Sheet to the RRT.

#### Comments:

.....

.....

.....

.....

**The following boxes and checklists are to support decision-making. Complete as appropriate given time and information constraints. Do not allow completing each check-box to inadvisably delay decision-making.**

## BOX 1

## IS DISPERSANT USE BEING CONSIDERED?

Dispersant use should be considered if one or more of the situations listed below exist:

- ☐ Oil is likely to significantly impact birds, marine mammals, or other flora and fauna at the water surface
- ☐ Natural dispersion is limited
- ☐ Other response techniques are unlikely to be adequate, effective, or economical
- ☐ The oil could emulsify and form mousse or tar balls
- ☐ Oil is likely to significantly impact shorelines, structures and facilities (e.g., marinas, wharves)
- ☐ Oil is likely to significantly impact economically important resources (e.g., shellfish beds, tourist beaches)
- ☐ Other .....

**Decision: Consider dispersant use?**

- ☐ Yes Make notifications in **Box 1a**  
Make notifications in **Box 1b**
- ☐ No Go to **Box 1c**

**Make a note of the decision on Dispersant Use Checklist (Page I-9)**

*From Cawthron, 2000*

## Discussion Note 1.1

## KEY BENEFITS OF DISPERSANT USE

- Dispersant use minimizes the effects of an oil spill principally by dispersing oil before it reaches shorelines or sensitive areas (e.g., wetlands, estuaries).
- Removing oil from the surface of the water reduces the potential for impacts to birds and marine mammals, and limits the action of wind on spill movement.
- Dispersants can prevent oil from sticking to solid surfaces, and enhance natural degradation.
- Dispersants can effectively treat large spills more quickly and inexpensively than most other response methods.
- Dispersants can be effective in rough water and strong currents where mechanical responses are limited.
- Effective dispersant responses can greatly reduce the quantity of oil requiring recovery and disposal.
- Dispersant use is often the only feasible response to spills that exceed mechanical response capabilities.
- Dispersant use does not generally limit other options, except oleophilic mechanical responses.
- Dispersed oil that cannot be mechanically recovered generally poses few significant environmental problems.

*From Cawthron, 2000*

## BOX 1a

## REQUEST SMART

Immediately deploy USCG Strike Team to the spill site if dispersant use is likely. Every attempt should be made by the FOSC and the Strike Team to implement the on-water component of the SMART (Special Monitoring of Advance Response Technologies) monitoring protocols in every dispersant application. **Dispersant application should not be delayed should sea conditions, equipment failure, or other unavoidable circumstances preclude the positioning of SMART monitoring equipment and personnel.** However, at a minimum, Tier 1 (visual) monitoring should occur by trained observers during any dispersant operation approved in accordance with this California Dispersant Plan. Tier 2 (on-site water column monitoring) and Tier 3 (fate and transport of the dispersed oil) SMART monitoring will be deployed as appropriate. Other information on monitoring dispersant effectiveness, including additional SMART background information, tools and report forms, is presented in [Appendices D.4 – D.8](#).

**Decision: Deploy SMART?**

- ☐ Yes Use contact information in Appendix A. **Estimated arrival time:** .....  
Go to **Box 1b**.
- ☐ No Note reason why not deployed. ....

**Make a note of the decision on Dispersant Use Checklist (Page I-9)**

Go to **Box 1b** or **Box 1c** as appropriate.

**BOX 1b****PUT AERIAL WILDLIFE OBSERVERS ON STANDBY OR DEPLOY TO IMPLEMENT THE WILDLIFE SPOTTING PROTOCOLS**

Consider deploying trained wildlife spotters in initial spill overflight aircraft so that they can determine if the presence of marine animals in the spill or dispersant application zones could influence spray pattern decisions by the FOSC. The goal is to minimize over-spray onto unaffected animals. Wildlife spotters should use the forms and procedures given in the *Wildlife Spotting Protocols* ([Appendix D.9](#) and [Appendix E](#)). The FOSC will decide how subsequent and systematic wildlife spotting efforts can be safely conducted with the aerial resources available.

**Decision: Notify/deploy aerial wildlife spotters?**

- ☐ Yes Use wildlife spotter contact information in [Appendix E.2](#). Go to **Box 2**.  
☐ No Note reason why wildlife spotters not deployed .....

**Make a note of the decision on Dispersant Use Checklist (Page I-9)**

Reconsider under **Box 7**.

**BOX 1c****IMPLEMENT OTHER RESPONSE OPTIONS**

Consider all response options to identify which option, or combination of options, is most appropriate. The following options are described in the Area Contingency Plan (Section 1640) and the Regional Contingency Plan (Section 1007.05).

- |  |  |
|--|--|
| <input type="checkbox"/> No action other than monitoring                   | <input type="checkbox"/> Clean-up of oil from shorelines |
| <input type="checkbox"/> Mechanical containment and recovery of oil at sea | <input type="checkbox"/> <i>In situ</i> burning          |

*From Cawthron, 2000*

**BOX 2****CAN SPILLED OIL BE CHEMICALLY DISPERSED WITH AN APPROVED AND AVAILABLE AGENT ON BOTH THE NCP PRODUCT LIST AND THE STATE OSCA LICENSING LIST?**

A NCP Product List may be found in [Appendix H](#). Updated NCP Product Lists can be accessed via the EPA representative on the RRT ([Appendix A](#)), by calling the Emergency Response Division of the U.S. EPA (202-260-2342) or accessing the Internet at <http://www.epa.gov/oilspill/ncp/dsprsnts.htm>

The State OSCA licensed dispersants may also be found in [Appendix H](#), calling the State OSPR representative on the RRT ([Appendix A](#)) or accessing the Internet at [http://www.dfg.ca.gov/ospr/reg\\_com/osca.html](http://www.dfg.ca.gov/ospr/reg_com/osca.html)

**Decision: Can this oil be dispersed with an approved and available agent?**

- ☐ Yes Go to **Box 3**.  
☐ No Go to **Box 1c**

**Make a note of the decision on Dispersant Use Checklist (Page I-9)**

*Taken in part from Cawthron, 2000*

## Discussion Note 2.1

## OIL DISPERSIBILITY (Also see App. C.10 for Window of Opportunity)

Three types of oils are typical of those produced or transported in California offshore waters: a) crude oils produced in California Outer Continental Shelf (OCS) waters; b) oils imported from Alaska and foreign countries into California ports; and c) fuel oils that could be spilled from a variety of marine industrial activities (*e.g.*, fuel tanks from ships, cargoes of small tankers). Dispersants only work if the spilled oil has a relatively low viscosity at the time of treatment.

**Appendices C.1 and C.2 show the California platform-produced oils and tankered oils, respectively.**

Most oils produced from offshore platforms are heavy, and border on the range of oils that are considered to be difficult or impossible to disperse. The oils transported by tanker include two-three dozen different types of oil (only the most common are listed in **Appendix C.2**). The most important is Alaska North Slope crude, which represents 50% of each annual total. Based on API gravity information, these oils appear to be dispersible when fresh.

- The most important criterion for dispersant use is whether the oil is dispersible.
- The best indication of oil dispersibility is from specific oil weathering and dispersion data from field trials (see **Appendix C.3** for some tested and modeled oils).
- Potential dispersibility can be *estimated* from physical properties of oils, under different oil weathering and spill scenarios (*e.g.*, ADIOS, Table 2.1 below). The ADIOS computer database predicts oil dispersion based on physical and chemical properties of spilled oil under specified spill conditions.
- Dispersant use should not be rejected exclusively on the basis of predictive models.

### Generally, if:

- Oil is able to spread on the water, it is likely to be dispersible.
- Viscosity is < 2000 cSt, dispersion is probable.
- Viscosity is >2000 cSt, dispersion is possible.
- Viscosity is >5000 cSt, dispersion is possible with concentrated dispersant (*e.g.*, Corexit 9500).
- Sea temperature is <10° C or below oil pour point, dispersion is unlikely.

**Potential dispersion may also be assessed using tables in Appendix C.**

### Limitations of predicting dispersion:

- Using generic values of viscosity and/or pour point to predict dispersion (*e.g.*, ADIOS, **Appendices C.3 and C.4**) can underestimate the potential for oil to be dispersed.
- Most models are based on limited oil weathering, emulsification or dispersion data, therefore estimated windows of opportunity may be inaccurate.

*Taken in part from Cawthron, 2000 and S.L. Ross, 2002*

**Table 2.1**

## ADIOS (AUTOMATED DATA INQUIRY FOR OIL SPILLS) COMPUTER DATABASE

Use the **DISPERSANT ASSESSMENT WORKSHEET** and the NOAA SSC (206-321-3320) for the information needed by ADIOS, or use the form below. The NOAA SSC should also be able to assist with ADIOS.

Copies of ADIOS are available from the NOAA website:

<http://response.restoration.noaa.gov/software/adios/adios.html>

Oil/product name:	_____	Wind speed:	_____ (knots)
Amount spilled:	_____ (gal or bbl)	Wave height:	_____ (m)
Type of release:	_____ Circle one	Water temp.:	_____ (°C)
<input type="checkbox"/> Instantaneous		Water salinity:	_____ (ppt)
<input type="checkbox"/> Continuous			

**Important limitations on the use of ADIOS:** ADIOS predicts dispersibility based on estimates of oil properties (including emulsification) under different conditions. As emulsification data are scarce, **predicted rates of dispersion may be different than actual rates of dispersion**. ADIOS is intended for use with floating oils only, and does not account for currents, beaching or containment of oil. ADIOS is unreliable for very large or very small spills. It is also unreliable when using very high or very low wind speeds in modeling the spill.

*From Cawthron, 2000*



**BOX 3****ARE OCEANOGRAPHIC AND/OR WEATHER CONDITIONS POTENTIALLY CONDUCTIVE TO DISPERSANT USE?**

Does the available technical information indicate that the existing oceanographic (*e.g.*, surface current direction and speed, wave and chop height) and weather (*e.g.*, wind direction and speed, visibility, ceiling height) conditions are suitable for a successful dispersant application?

Use the following resources:

- ☐ Information on the DISPERSANT ASSESSMENT WORKSHEET
- ☐ Consultation with the NOAA Scientific Support Coordinator (206-321-3320)
- ☐ Information resources and web sites noted in [Appendix A](#)
- ☐ Information from aerial overflights
- ☐ Information from ADIOS

**Decision: Are ocean and weather conditions potentially suitable for a dispersants application?**

- ☐ Yes    Go to **Box 4.**
- ☐ No     Go to **Box 1c**

**Make a note of the decision on Dispersant Use Checklist (Page I-9)**

**BOX 4****IS THE SPILLED OIL PROPOSED FOR DISPERSANT TREATMENT AT LEAST 3 MILES FROM SHORE, NOT WITHIN NMS BOUNDARIES, AND NOT WITHIN 3 MILES OF THE CA/MEXICO BORDER?**

A full-page statewide chart indicating the area three nautical miles from shore and the areas within National Marine Sanctuaries (Gulf of the Farallones, Cordell Banks, Monterey, Channel Islands) is in Chart 4.1 below. Regional charts, with pre-approval dispersant zones noted, are in [Appendix B](#).

**Decision: Is the spilled oil within a Pre-Approval zone?**

- ☐ Yes    Go to **Box 5.**
- ☐ No     Pre-Approval does not apply. Go to **Box 4a.**

**Make a note of the decision on Dispersant Use Checklist (Page I-9)**

**BOX 4a****PRE-APPROVAL DOES NOT APPLY; REFER TO RRT APPROVAL PROCESS.**

The request for dispersant use does not qualify under the pre-approval guidelines for the use of dispersants in RRT Regional IX. Contact the NOAA SSC (206-321-3320) and begin the dispersant *RRT Approval Process*, [Section II](#).

Chart 4.1

## California Marine Waters Pre-Approval Dispersant Zone



**BOX 5****CAN DISPERSANT BE APPLIED SAFELY FROM AN APPROPRIATE PLATFORM?**

Use the information in the **DISPERSANT ASSESSMENT WORKSHEET** to evaluate which application platform(s) will be most effective, given the following particular considerations:

- The amount of oil spilled;
- The location of the operational area;
- The volume of available dispersants;
- The timeframe in which the required equipment can be on-scene.

Assume for planning purposes that the weather information on the **DISPERSANT ASSESSMENT WORKSHEET** will remain the same during the timeframe in which this decision is operating. At the earliest opportunity, contact the NOAA SSC (**206-321-3320**) for more detailed and updated weather information, but do not delay this decision process for the NOAA SSC weather input. Weather information may also be available from resources noted in [Appendix A](#). See [Appendices C.5 – C.8](#) for specific information on dispersant application platforms.

**Decision: Is there a safe and appropriate application platform for a dispersant operation?**

(See Discussion Note 5.2 below for important safety information)

	Yes	(Type)	No	(Why not appropriate?)
C-130/ADDS Pack	<input type="checkbox"/>		<input type="checkbox"/>	.....
DC-4	<input type="checkbox"/>		<input type="checkbox"/>	.....
Other large multi-engine airplane	<input type="checkbox"/>	.....	<input type="checkbox"/>	.....
Cessna AT-802	<input type="checkbox"/>		<input type="checkbox"/>	.....
Other single-engine airplane	<input type="checkbox"/>	.....	<input type="checkbox"/>	.....
Helicopter	<input type="checkbox"/>	.....	<input type="checkbox"/>	.....
Work boat	<input type="checkbox"/>	.....	<input type="checkbox"/>	.....
	Go to		Go to	
	<b>Box 6</b>		<b>Box 5a and/or 5b</b>	

**Make a note of the decision on Dispersant Use Checklist (Page I-9)**

**Discussion Note 5.1 CURRENT LOGISTICS FOR A CALIFORNIA DISPERSANT APPLICATION**

Use the information on the **DISPERSANT ASSESSMENT WORKSHEET** to consider the following:

- ☐ Is the selected dispersant available in the quantity needed?
- ☐ Can the estimated “window of opportunity” for getting the dispersant on the oil be met?
- ☐ Can the dispersant and application resources get to the spill scene on time?
- ☐ Will there be enough daylight hours for an effective dispersant application?

Refer to [Appendix C](#) for more specific regional dispersant resource information.

**Discussion Note 5.2****GENERAL SAFETY ISSUES**

- The FOSC is responsible for ensuring that health and safety requirements are adequately addressed during a response.
- Individuals should not engage in activities that they are not appropriately trained to perform.
- Individuals are expected to adhere to safety procedures appropriate to the conditions they are working under and/or are included in a dispersant-specific Site Safety Plan Annex.
- Vessel/aircraft operators are expected to define appropriate operational limits and safety and maintenance requirements for their craft.
- Vessels and response resources should be properly maintained and undergo proper decontamination procedures.
- Apply dispersants only if there is no significant risk to response personnel (*e.g.*, ignition risk, operational hazards).
- Ensure the appropriate personal protective equipment (PPE) is available.
- Ensure that application aircraft and vessels remain within standard operating limits.
- Each person involved in a response is required to take personal responsibility for his or her safety. The FOSC may appoint a Safety Officer and request development of a specific Site Safety Plan Annex. Key safety aspects to be considered in the plan may include:
  - Physical hazards (*e.g.*, waves, tides, unstable or slippery surfaces)
  - Heavy machinery and equipment
  - Chemical hazards (*e.g.*, oil and dispersant exposure)
  - Atmospheric hazards (*e.g.*, fumes, ignition risks)
  - Confined spaces
  - PPE
  - Noise
  - Fatigue
  - Heat/cold stress
  - Wildlife (bites/stings)
  - Cleanup facilities
  - Medical treatment

**HUMAN SAFETY OVERRIDES ALL OTHER CONSIDERATIONS DURING A RESPONSE**

*From Cawthron, 2000*

**BOX 5a****DISPERSANT OPERATIONS ON WEATHER STANDBY**

Consult with appropriate RRT IX members (USCG/District 11 Co-Chair, EPA, DOI, DOC and OSPR (See [Appendix A](#) for contact information) to notify them that dispersants are being considered, but delayed due to weather.

**Decision:** Has the weather improved to the point where dispersants can be applied?

- ☐ Yes    Go to **Box 6**
- ☐ No    Continue to **reassess** (until/unless time window for successful application closed) or  
Go to **Box 5b**

**Make a note of the decision on Dispersant Use Checklist (Page I-9)**

**BOX 5b****WEATHER UNLIKELY TO IMPROVE OR  
SUITABLE RESPONSE RESOURCES NOT AVAILABLE**

There will be spill situations where dispersant use may be appropriate but weather conditions and available resources will not allow dispersants to get on the oil within the appropriate weather window. In these cases, dispersant use will need to be abandoned and other response options considered instead.

Go to **Box 1c**

**BOX 6****FOSC CAN USE DISPERSANTS****DISPERSANTS APPROVED FOR USE BY THE FOSC NEED TO BE APPLIED USING THESE RRT IX GUIDELINES:**

- ☐ Pre-approval zones are only in waters no closer than 3 nautical miles from the nearest shoreline, not within 3 miles of the CA/Mexico borders, and not within the boundaries of a National Marine Sanctuary.
- ☐ Dispersants cannot be applied to any diesel spill.
- ☐ The SMART controller/observer should be over the spray site before the start of the operation. If possible, a DOI/DOC-approved marine mammal/turtle and pelagic/migratory birds observation specialist (see [Appendix E.2](#) for list) will accompany the SMART observer. However, the operation will not be delayed for either function.
- ☐ The marine wildlife observer, or the person functioning as that observer, is strongly encouraged to use the Wildlife Observation Report Form ([Appendix D.9](#)) and the Wildlife Spotting Protocols ([Appendix E](#)). However, the operation will not be delayed for this function.
- ☐ Personnel protective equipment for personnel on-site will conform to the appropriate dispersant's Material Safety Data Sheet (MSDS).
- ☐ Dispersant application aircraft will maintain a minimum 1000-foot horizontal separation from rafting flocks of birds. Caution will be taken to avoid spraying over marine mammals and marine turtles (see [Appendix A](#) for resource agency contact information).
- ☐ If the dispersant application platform is a boat, see Discussion Note 8.3.

**BOX 6a****INITIATE PUBLIC COMMUNICATIONS PLAN**

Once a decision to use dispersants is made, it is critical that a public communications plans be implemented ([Appendix F](#)). The general public as well as stakeholders must be made aware of any decision to use dispersants and a mechanism created for reliable and continuous updates.

An initial press conference should be held which outlines the decision to use dispersants, provides background and scientific information, and addresses any other environmental and safety considerations expressed by the public. A sample press release is in [Appendix F.1](#), with other public meeting and risk communication tips offered throughout [Appendix F](#).

A public meeting should be scheduled as soon as possible to provide a mechanism for sharing information and addressing public concerns and fears. [Appendix F](#) provides guidelines for preparing and conducting a public meeting. Areas that must be adequately addressed during the meeting include:

- Seafood tainting concerns posed by dispersants ([Appendix G](#)).
- Risk communication ([Appendix F.2](#) and [Appendix G](#)).
- Results of net environmental benefit analyses, and species of special concern (summarized in [Appendix B](#)).
- Monitoring policies established for the spill (tools used from [Appendix D](#)).

**BOX 6b****IMPLEMENT SEAFOOD TAINING PLAN IF NECESSARY**

Refer to [Appendix G](#) for key points to consider regarding seafood tainting, as well as information on accessing NOAA and state resources for assessing the tainting risk.

**BOX 7****FOSC SHOULD EVALUATE PRESENT CONDITIONS FOR EXCEPTIONS TO  
ENVIROMENTAL TRADEOFFS (NEBA)**

This FOSC Checklist applies only to those California offshore waters pre-approved for dispersant use (waters 3 – 200 nautical miles from shore, not within a National Marine Sanctuary, and not within 3 miles of the CA/OR or CA/Mexico borders); see **Box 4**. However, dispersant use even in the pre-approval areas must follow certain guidelines (**Box 6**) and may be further limited by federal agencies with responsibility for endangered marine animal management (**Appendix J**).

Pre-approval dispersant zone recommendations do not presume the absence of sensitive species, other marine species, or impacts to species on the water surface or in the upper water column. It does presume that there will be impacts from the spilled oil, and from dispersant use, to some of those species. However, based on the natural resource information used in the planning stage, it was determined that there could be a net environmental benefit to the use of dispersants.

However, at the time of an actual spill and a decision to use dispersants, real-time information on marine animal presence (**Box 1b** and **Box 7b**), the potential impacts from the spill (**DISPERSANT ASSESSMENT WORKSHEET**), and important supplemental information (**Appendix B** and **Boxes 7a-b**) should all be considered and weighed by the FOSC in making a final decision to use dispersants, probable impacts, and where the net environmental benefits will occur.

The FOSC may use the regional sensitive species and habitat information from **Appendix B** for each major coastal area in which dispersant use may have an impact in order to consider:

- ☐ The type and value of habitat potentially affected.
- ☐ The sensitivity of affected resources to oil, and to different oil response strategies.
- ☐ Natural recovery rates of affected species and habitats.
- ☐ Likely oil persistence and degradation rates with and without dispersant use.
- ☐ Potential oil toxicity on surface water species compared to water column and/or seafloor species.

**Dispersant use is generally not appropriate in areas with limited water circulation and flushing, near aquaculture facilities, shellfish beds and fish-spawning grounds, and around seawater intakes.**

The central question to be answered in assessing Net Environmental Benefit is:

Will dispersant use significantly reduce the impact of the spilled oil?

- Rapid decisions on use are essential as dispersant must be applied quickly to be effective.
- Decision-makers must consider the various environmental, social, economic, political and cultural factors unique to each spill.
- Tradeoffs will be necessary, as no response is likely to satisfy all parties and protect all resources. The ecological impacts of oil are generally longer-lasting and more persistent than most other impacts.
- Ecological effects will be due primarily to the spilled oil. Dispersant applied at recommended rates is unlikely to cause significant adverse effects, even in multiple applications.
- Oil dispersed into water depths greater than 10m will quickly dilute to levels where acute toxic effects are unlikely.
- Few acute toxic effects have been reported for crude oil dispersed into less than 10m of well-flushed water.
- Small spills of light fuels seldom require dispersant use.

**BOX 7a****REGIONAL SENSITIVE SPECIES AND HABITAT INFORMATION FROM NEBA**

At the time of an actual oil spill or a decision to use chemical dispersants on the oil, marine species are expected to be on the water surface or in the upper water column. Before using chemical dispersants, the FOSC will have decided that there may be a net environmental benefit from dispersant use. Information on regional sensitive species and habitat information from the Net Environmental Benefit Analyses (NEBA), summarized for each region in [Appendix B](#), can help the FOSC determine which species might actually be in the area and scouted for by the aerial observers (**Box 1b** and **Box 7c**). This additional information can provide further validation and justification to a FOSC that impacts of chemical dispersant application will be minimized wherever possible, and net environmental benefit maximized.

**BOX 7b****MARINE ANIMALS INFORMATION FROM AERIAL WILDLIFE SPOTTERS**

The FOSC can take additional information and advantage from the Aerial Wildlife Observers if they have been deployed (**Box 1b**), or information from the Wildlife Aerial Survey Form ([Appendix D.9](#)) available from other aerial spotters, or information from wildlife spotters ([Appendix E.2](#)) available to the FOSC from other data collection forms or notes used by those spotters. Any of these resources will provide real-time or near real-time information on marine seabird and mammal presence, and can guide the FOSC on dispersant application parameters that may minimize impacts to those resources.

**BOX 8****APPLY DISPERSANTS AND INFORM RRT**

- ☐ Use the information on estimated oil spill volume from the DISPERSANT ASSESSMENT WORKSHEET and Discussion Note 8.1 below to:
  - Determine the dispersant application ratio (usually 1:20), and
  - Calculate the volume of dispersant required ([Appendices D.1 and D.2](#)).
- ☐ Record the details on the Dispersant Application Summary Form ([Appendix D.4](#));
- ☐ Mobilize application team;
- ☐ If not already done, mobilize SMART. Some blank SMART forms are included in [Appendix D](#) for use by other trained professionals, if appropriate and when approved by the FOSC.
- ☐ Inform RRT (see [Appendix A](#) for contact information).

**Decision: Dispersants applied?**

- ☐ Yes     Go to **Box 9**
- ☐ No       Explain.

**Make a note of the decision on Dispersant Use Checklist (Page I-9)**

**Reassess as necessary and appropriate.**



## Discussion Note 8.1

## GENERAL APPLICATION INFORMATION

- The FOSC has final responsibility for operational aspects of dispersant applications.
- Dispersant must only be applied by experienced spray applicators and in accordance with manufacturer instructions.
- The persons applying dispersant are responsible for the calibration and operation of the spraying system, and the safety and maintenance of the application platform.
- Droplet size is the key variable influencing dispersant effectiveness. Undersized droplets (*e.g.*, fog or mist) will be lost through drift and evaporation. Oversized droplets will punch through the oil and be lost in the water column.
- Dispersants pre-diluted in water are less effective than undiluted dispersant.
- Only undiluted concentrate dispersant is applied from aircraft. Dispersant should, where possible, be applied into the wind and parallel with the slick.
- Dispersant should be applied in a methodical and continuous manner to ensure the entire target area is treated.
- Spraying effort should concentrate on the thickest sections, and/or the leading edges, of oil that threaten sensitive areas.
- Thick portions of the slick may require several applications.
- Oil sheen should not be sprayed with dispersant.

### Regarding the relationship between Dispersant-to-Oil Ratio (DOR) and the concentration of oil being treated:

- Regardless of DOR ratios suggested by dispersant manufacturers, there are many factors that influence dispersibility (*e.g.*, oil characteristics, degree of weathering, water salinity, sea state) that may make it very difficult to select an appropriate DOR for the conditions faced on the day of a specific spill
- The variability of slick thickness (or oil concentration) is such that one can never really characterize the actual oil concentration for more than a few seconds within the speed and swath constraints of a particular application system.
- With most application systems, one is usually overdosing and underdosing as the system moves through light, heavy and sometimes “no” oil on the water surface.
- The best estimate of the average oil thickness (or average volume of oil per unit area) must be used.
- Given that precise spray parameters are extremely difficult to achieve, dispersant applicators generally use about 5 gallons of dispersant per acre on their first run.
- Area, volume and thickness can be related with the following expression:

$$10^4 \times \text{Area (hectare)} \times \text{Thickness (mm)} = \text{Volume (liters)}$$

or

$$\text{Volume (liters/Area (hectares))} = 10^4 \times \text{Thickness (mm)}$$

- ▶ To convert liters/hectare to gallons/acre, multiply by 0.107. To convert liters/hectare to gallons/square kilometer, multiply by 26.42.
- ▶ These values (in any units) multiplied by the DOR (as a fraction, *e.g.*, 1:5 = 1/5 or .2) will then yield the Desired Dosage (in those units) for that value of DOR.
- ▶ Refer to Appendix D.1 for some pre-calculated values.

*From Cawthron, 2000 and Al Allen (Spilltec), 2003 personal communication*

## Discussion Note 8.2

## AERIAL APPLICATION

This general aerial application guide is intended simply to highlight key issues. The FOSC will coordinate and oversee operational aspects of aerial dispersant applications.

- Aircraft applications should always include pump-driven spray units.
- Dispersant droplet size should be between 400 and 1000 microns.
- Commercial aircraft spray nozzles generally range between 350 and 700 microns.
- 1000-micron spray nozzles may be needed for use on viscous oils.
- Nozzles should achieve an application rate of 5.3 gallons per acre if using a 1:20 ratio.
- Spray nozzles should be installed to discharge directly aft.
- Underslung buckets on helicopters should be mounted so the pilot can see the ends of the spray booms in flight.
- The altitude of the aircraft should be as low as possible.

*From Cawthron, 2000*



**Discussion Note 8.3****BOAT APPLICATION**

- Spray booms should be mounted as far forward as possible to prevent oil being moved aside by the bow wave before being sprayed. This then uses the mixing energy of the bow wave to break up the oil.
- Spraying systems should be set so that the spray pattern is flat, striking the water in a line perpendicular to the direction of the boat's travel.
- The fan-shaped sprays from adjacent nozzles should be set as low as possible, overlapping just above the oil/water surface, with the inboard spray striking the hull just above the waterline.

**Undiluted dispersants**

- Air blast sprayers and modified spray pumps can be used to apply undiluted concentrated dispersants and conventional dispersants.
- Treatment rate is usually constant and determined by nozzle size and spray pressure.
- Calibration and use of an appropriate droplet size is critical to effective applications.

**Pre-diluted dispersants**

- Concentrated dispersants can be applied after pre-dilution in seawater, but will be less effective.
- The dispersant : water ratio should be equal to, or greater than, 10%
- Applications through ship's fire-fighting equipment are controlled by opening or closing the dispersant supply. Vessel speed is used to control the treatment rate.
- Dual pump systems for dispersant and seawater-supplying spray booms allow the dilution rate to be adjusted.
- Boat speed is the main determinant of dispersant dose rate (reduce boat speed to increase the dose rate).
- Boat speed should be in the order of 5 knots for fresh spills of liquid crude or fuel oil, which assumes that the oil has spread to 0.1 mm thick.
- With reduced boat speeds, the required application rate per acre or km<sup>2</sup> can be maintained by reducing pump speed.

The following ASTM standards apply to systems involving spray arms or booms that extend over the edge of the boat and have fan-type nozzles that spray dispersant in a fixed pattern:

- ASTM F 1413-92: Standard Guide for Oil Spill Dispersant Application Equipment: Boom and Nozzle Systems
- ASTM F-1460-93: Standard Practice for Calibrating Oil Spill Dispersant Application Equipment Boom and Nozzle Systems
- ASTM F 1737-96: Standard Guide for use of Oil Spill Dispersant Application Equipment During Spill Response: Boom and Nozzle Systems.

Boat-based systems using a fire monitor and/or fire nozzle shall avoid a straight and narrow "firestream" flow of dispersant directly into the oil. There are no applicable ASTM standards for these systems at this time (December 2003).

*In part from Cawthron, 2000*

**BOX 8a****NOTIFICATION OF RRT IX OF DISPERSANT USE WITHIN 3 MILES OF THE OR/CA BORDER**

The FOSC can approve the use of dispersants within the 3 miles zone of the California/Oregon border. Once a dispersant use decision is made, the FOSC should contact the RRT IX-X Liaison of the decision as soon as possible and should also endeavor to fax the Dispersant Record of Decision as well. Contact information can be found in [Appendix A](#).

**BOX 9****ARE THERE INDICATIONS THE DISPERSANT IS EFFECTIVE?**

- ☐ Acquire information from dispersant monitoring team (SMART team or other FOSC-designated monitors).
- ☐ Review dispersant monitoring results after each dispersant application.
- ☐ Determine if chemical dispersion is significantly greater than natural dispersion.
- ☐ Assess whether changing application parameters could make the application more effective.

**Decision: Are there indications the dispersant is effective?**

- ☐ Yes Go to **Box 10**
- ☐ No See Discussion Note 9.2 and return to **Box 8**, or Go to **Box 12**

**Make a note of the decision on Dispersant Use Checklist (Page I-9)**

*From Cawthron, 2000*

**Discussion Note 9.1****ASSESSING DISPERSANT EFFECTIVENESS**

- Dispersant applications must be monitored to confirm whether or not dispersant use is effective, and to determine the fate and transport of treated oil.
- Dispersant applications should not be delayed simply because monitoring is not in place.
- Visual observation is the minimum level of monitoring. Observations teams may use the forms in [Appendix D](#).
- There will be very few instances where a dispersant application is possible but visual monitoring is not.
- Because dispersed oil plumes are often highly irregular in shape and thickness, it can be difficult to accurately estimate dispersant efficiency.
- The appropriate dispersant application dose depends on the oil thickness (see [Appendices D.1 and D.2](#) for common dose rates based on oil thickness). Slicks are generally not of uniform thickness, and it is not always possible to distinguish among thicker and thinner portions of the same slick. It is therefore possible to apply too much or too little dispersant to some parts of a slick. Because over- and under-dosing can lead to variations in effectiveness, these variations should be noted.
- On-site monitoring of oil dispersed in the water column should support visual monitoring whenever possible. See [Appendix D](#) for additional information and forms.
- Decisions to terminate operations due to poor effectiveness should ideally be based on on-site monitoring results.
- A visible coffee-colored cloud in the water column indicates the dispersant is working.
- A milky-white plume in the water column can indicate excessive dispersant application.
- When dispersant is working, oil remaining on the water surface may also change color.
- A difference in the appearance of treated and untreated slicks indicates dispersion is likely.
- Absence of a visible cloud in the water column makes it difficult to determine whether the dispersant is working. When the water is turbid, you may not be able to see a plume. Oil remaining at the surface and sheens can also obscure an ability to see oil dispersing under the slick.
- Successful dispersion can occur with no visible indication of dispersion.
- A subsurface plume may not form instantly once dispersant has been applied. In some cases (*e.g.*, emulsified oil) it can take several hours for a plume to form. In other cases, a visible plume may not form, and you may wish to use sampling to learn whether dispersion has occurred.
- Boat wakes may physically part oil, falsely indicating successful dispersion. Mechanically dispersed oil will re-coalesce and float to the surface.
- Dispersants sometimes have a herding effect on oil after initial applications, making a slick appear to be shrinking when, in fact, the dispersant is “pushing” the oil together. The effect results from the surfactants in the dispersant, which causes a horizontal spreading of thin oil films. This can cause parts of a slick to seem to disappear from the sea surface for a short time.

*From Cawthron 2000 and NOAA Oil Spill Job Aids*

**Discussion Note 9.2****WHEN DISPERSANT IS NOT EFFECTIVE**

If monitoring shows dispersion does not appear effective, review all aspects of the application and monitoring for possible reasons why. Aspects to consider include:

- Dispersant formulation
- Application ratios (increase or decrease oil: dispersant ratio)
- Application methods
- Monitoring methods
- Interpretation of monitoring results
- Oil weathering
- Weather conditions

*From Cawthron, 2000*

**BOX 10****IS ONGOING DISPERSANT USE JUSTIFIED AND SAFE?**

All of the following must apply to justify ongoing dispersant use:

- ☐ The spill can be chemically dispersed with an approved and available agent (see **Box 2** and **Appendix H**); Oceanographic and weather conditions are potentially conducive to dispersant use (see **Box 3** and DISPERSANT ASSESSMENT WORKSHEET);
- ☐ The spilled oil is at least 3 nautical miles from shore, not within the boundaries of a National Marine Sanctuary (see **Box 4**), and not within 3 miles of the CA/OR or CA/Mexico borders;
- ☐ The dispersant will have a net environmental benefit (see **Box 7a**);
- ☐ The dispersant can be applied safely (see **Box 5**), with suitable weather (**Box 5a**) and available resources (**Box 5b**);
- ☐ There are indications the dispersant continues to be effective (see **Box 9**).

**Decision: Continue with dispersant use?**

- ☐ Yes      Go to **Box 11**
- ☐ No        Go to **Box 12**

**Make a note of the decision on Dispersant Use Checklist (Page I-9)**

**THERE WILL BE A POINT WHEN DISPERSANTS ARE NO LONGER EFFECTIVE.**

**BOX 11****CONTINUE TO MONITOR APPLICATION PARAMETERS AND RUN  
ADDITIONAL DISPERSANT SORTIES AS NECESSARY**

More than one dispersant sortie (run) may be necessary to effectively treat the oil spill. Continue to monitor information on the spill extent, dispersant effectiveness, continued availability of suitable weather “windows” and dispersant application equipment and personnel, and perform additional applications as necessary.

- ☐ Record information from each sortie on the Dispersant Decision Summary.
- ☐ Inform RRT when all runs are completed (fax Dispersant Decision Summary form to RRT contacts in **Appendix A**).

**THERE WILL BE A POINT WHEN DISPERSANTS ARE NO LONGER EFFECTIVE.**

**BOX 12****DO NOT USE DISPERSANT**

Pre-approval to use dispersants does not apply if **any** of the following occur:

- ☐ The spill cannot be chemically dispersed with an approved and available agent (see **Box 2** and); Oceanographic and weather conditions are not potentially conducive to dispersant use (see **Box 3** and DISPERSANT ASSESSMENT WORKSHEET);
- ☐ The spilled oil is closer than 3 nautical miles from shore, within the boundaries of a National Marine Sanctuary (see **Box 4**), or within 3 miles of the CA/OR or CA/Mexico borders. Approval to use dispersants within 3 miles of landfall or CA borders, or within a National Marine Sanctuary, does not fall within the Pre-Approval guidelines, and will instead need to be considered under the RRT Approval Process (see **Box 4a** and **Appendix I**);
- ☐ The dispersant will not have a net environmental benefit (see **Box 7a**);
- ☐ The dispersant cannot be applied safely (see **Box 5**), with suitable weather (**Box 5a**) or available resources (**Box 5b**);
- ☐ The dispersant is not significantly more effective than natural dispersion or other response options (see **Box 9**).

**IF DISPERSANT USE IS CONSIDERED INAPPROPRIATE, CONSIDER OTHER RESPONSE OPTIONS.**

Go to **Box 1a**.

**DISPERSANT PRE-APPROVAL  
RECORD OF DECISION**

Subpart J of the National Contingency Plan (NCP) provides that the FOSC, with the concurrence of the EPA representative to the Regional Response Team and the State with jurisdiction over the navigable waters threatened by the oil discharge, and in consultation with the U.S. Department of Commerce (DOC) and U.S. Department of the Interior (DOI) natural resource trustees, when practicable, may authorize the use of dispersants on oil discharges; provided, however, that such dispersants are listed on the NCP Product Schedule. The EPA has been delegated authority to maintain a schedule of chemical countermeasures that may be authorized for oil discharges in accordance with procedures set forth in Section 300.900 of the NCP.

The Region IX, Regional Response Team has established dispersant pre-approval zones within waters 3 – 200 miles along the California coast, as designated and has provided policies and procedures for a FOSC to authorize the use dispersants consistent with these pre-approval zones. For purposes of this record of decision, the designated FOSC has completed the “Pre-Approval Zone Dispersant Use Checklist” and has determined that the oil spill, Name of Oil Spill Incident, meets the pre-approval criteria as outlined and that dispersant use is authorized.

\_\_\_\_\_  
Federal On-Scene Coordinator  
United States Coast Guard

\_\_\_\_\_  
Date

California statute requires that emergency response operations utilize the Incident Command System. For marine oil spill response, a joint Unified Command Structure is implemented consisting of the Federal On-Scene Coordinator, the State On-Scene Coordinator and the Response Party and outlined in the Memorandum of Understanding between the United States Coast Guard and the California Department of Fish and Game, Office of Spill Prevention and Response. For purposes of this record of decision, the authorization of dispersant use as delegated by the Region IX RRT to the designated FOSC was completed within a Unified Command Structure and agreed upon by the State On-Scene Coordinator and the representative of the Responsible Party. The Joint Unified Command has completed the “Pre-Approval Zone Dispersant Use Checklist” and has determined that the oil spill, Name of Oil Spill Incident, meets the pre-approval criteria as outlined and that dispersant use is authorized.

\_\_\_\_\_  
State On-Scene Coordinator  
Office of Spill Prevention and  
Response  
State of California

\_\_\_\_\_  
Responsible Party Representative

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

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- ExxonMobil Dispersant Guidelines. 2000. ExxonMobil Research and Engineering Company.
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- State of California, Office of Emergency Services. 2001. Risk communication Guide for State and Local Agencies. 17pp.
- Stevens, Leigh. 2000. Oil Spill Dispersants: Guidelines for use in New Zealand. Prepared for Maritime Safety Authority of New Zealand.
- Wildlife Response Plan Appendices of the California Area Contingency Plan. Version 2, October 2003.
- Yender, R., J. Michel, and C. Lord. 2002. Managing Seafood Safety After an Oil Spill Seattle: Hazardous Materials Response Division., Office of Response and Restoration, National Oceanic and Atmospheric Administration. 72 pp.

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Resources from Internet World Wide Web sites:

NOAA Oil Spill Job Aids  
(web links of 12/18/03)

[http://response.restoration.noaa.gov/job\\_aid/glossary.html](http://response.restoration.noaa.gov/job_aid/glossary.html)  
<http://response.restoration.noaa.gov/oilaid/spiltool>  
[http://response.restoration.noaa.gov/disp\\_aid/remember.html](http://response.restoration.noaa.gov/disp_aid/remember.html)  
[http://response.restoration.noaa.gov/disp\\_aid/checklist.html](http://response.restoration.noaa.gov/disp_aid/checklist.html)  
<http://response.restoration.noaa.gov/oilaid/OilAtSea.pdf>  
<http://response.restoration.noaa.gov/oilaid/SMART/SMART.html>

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## SECTION II: RRT Expedited Approval Zones

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## **OVERVIEW**

### **RRT EXPEDITED APPROVAL ZONES**

#### **Protocols for dispersant use**

The FOSC shall arrive at a decision to use dispersants using the information-gathering and decision-making process outlined below, and, using the checklists and procedures attached to this document, forward this information to the RRT for approval. These protocols presume that the FOSC has previously determined that a proposed dispersant use does not meet the criteria of pre-approval, but that dispersant use under a case-by-case RRT approval authority is being pursued.

#### **RRT approval required for dispersant use**

For those spill situations that are not addressed by the pre-approval process, FOSC authorization to use dispersants requires the concurrence of the RRT Co-Chairs (the U.S. Coast Guard and U.S. EPA) and State representatives to the RRT and in consultation with the DOI and DOC representatives. The RRT must approve the use of dispersants at the time of a spill for all scenarios within the designated marine waters:

- Marine waters within 3 nautical miles from the coastline, waters designated as a part of a National Marine Sanctuary, or waters that are within three miles of the borders of the Country of Mexico;
- Marine waters one mile from anadromous fish streams during times of emigration and immigration.

Once an FOSC determines to pursue the use of dispersants in a non-pre-approval zone, a formal evaluation of the trade-offs associated with this proposed dispersant use must be conducted. The forms and checklists found in the **DISPERSANT ASSESSMENT WORKSHEET** and **DISPERSANT USE CHECKLIST** below are designed to assist the FOSC or his/her designee in making this determination. The following is an overview of pertinent decision-making points:

- The spilled oil must be amenable to chemical dispersion. Diesel is strictly prohibited from dispersant-use;
- Oceanographic conditions allow for the effective and safe use of dispersants;
- The use of dispersants provides a net environmental benefit. Of special concern are kelp beds and marine waters less than 60 feet deep;
- Appropriate dispersants, dispersant application equipment and personnel are available.

Once the FOSC has filled out the checklists and forms and has determined dispersant use would be a viable and appropriate response option, the FOSC must put in a formal request for approval to the RRT. A spill-specific RRT conference call will be conducted in which all aspects of the dispersant-use request will be evaluated. The RRT will provide the FOSC with an answer regarding the dispersant approval request within 2 hrs of the formal request. The decision to use dispersants will be with approval of the RRT co-chairs and the representative of the State of California with consultation from the DOI and DOC. It is likely that the RRT will address similar stipulations as outlined in the pre-approval process, such as the following;

- Dispersants should not be applied directly to marine mammals within or outside of an oil slick;
- Dispersants will be applied in such a way as to avoid, to the maximum extent practicable, the spraying of seabirds outside the oil slick being treated;
- During the actual dispersant application operations, the sea surface area designated for dispersant application should be assessed by trained wildlife observers in the spotter aircraft for the presence of marine birds and mammals to avoid inadvertent spraying.
- The effectiveness of the dispersant application should be monitored at a minimum by observers trained in dispersant use and if possible with the Special Monitoring of Applied Response Technologies (SMART) monitoring program.

## **Quick Guide to Forms, Worksheets and Checklists**

The CDP is designed primarily to assist the FOSC in making a dispersant use decision at the time of an incident. Many forms, worksheets, and checklists are included as a part of the CDP to facilitate information gathering, decision-making and providing supporting documentation, as necessary. These worksheets and forms should assist the Unified Command in making a dispersant use decision, not hinder the process with unnecessary paperwork.

As a part of the dispersant pre-approval zone decision-making process, please use the quick guide to forms, worksheets and checklists outlined below.

### **1) Dispersant Assessment Worksheet                      Not Required by RRT**

This document was designed to assist in the gathering and organization of pertinent information necessary to make a dispersant use decision.

### **2) Pre-Approval Zone Dispersant Use Checklist                      Required by RRT**

This checklist was designed to provide an overview of the pre-approval decision-making process and to provide a “dispersant decision summary” for the Incident, detailing the decisions made. Once this form is completed and the FOSC decides to use dispersants, the checklist should be faxed to the RRT as soon as feasible.

### **3) Dispersant Request Record of Decision                      Required by RRT**

This form was designed to provide a record of decision regarding the evaluation and request for dispersant use, consistent with the criteria provided in the “expedited dispersant use zone checklist.” The record of decision is to be signed by all members of the Joint Unified Command and should be faxed with the dispersant use checklist to the RRT.

### **3) Checklist Documentation and Support Form                      Not Required by RRT** **Boxes #1 - #12**

This form was designed as a support tool to evaluate the information required in the pre-approval zone dispersant use checklist. This form guides the user through each decision-making point, allowing evaluation of each question that is a part of the dispersant use decision-making process. This form also cross-references the appendices, as needed, where additional information can be found.

## DISPERSANT ASSESSMENT WORKSHEET

Information gathered to complete this form will facilitate the RRT dispersant use determination; complete as much as possible without inadvisably delaying RRT decision-making.

This report made by: \_\_\_\_\_ Organization: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
Phone: ( ) \_\_\_\_\_ Fax: ( ) \_\_\_\_\_ Mobile: ( ) \_\_\_\_\_ Pager: ( ) \_\_\_\_\_

On-Scene Commander: \_\_\_\_\_ Agency: \_\_\_\_\_  
Phone: ( ) \_\_\_\_\_ Fax: ( ) \_\_\_\_\_ Mobile: ( ) \_\_\_\_\_ Pager: ( ) \_\_\_\_\_

Caller: \_\_\_\_\_ Organization: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
Phone: ( ) \_\_\_\_\_ Fax: ( ) \_\_\_\_\_ Mobile: ( ) \_\_\_\_\_ Pager: ( ) \_\_\_\_\_  
Street: \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

OES Control # \_\_\_\_\_ NRC # \_\_\_\_\_

### SPILL

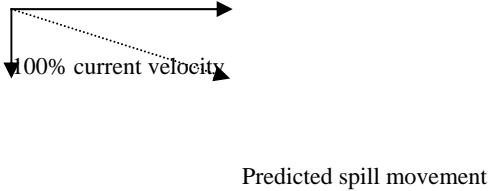
Date of spill: _____ (month/day/year)	Time of spill: _____ (PST, 24-hr clock)
Location: Latitude: _____ N	Longitude: _____ W
Spill source and cause: _____ _____	
Amount spilled: _____ (gal or bbl)	Type of release: <input type="checkbox"/> Instantaneous <input type="checkbox"/> Continuous
Flow rate if continuous flow (estimate): _____	
Oil name: _____	API: _____ Pour point: _____ (°C)
Information source: _____	

### ON-SCENE WEATHER, CURRENTS AND TIDES

(If not immediately available contact NOAA Scientific Support Coordinator (206-321-3320) or other resources noted in Appendix A).

Wind (from) direction: _____	Next low tide: _____ (ft) at _____ (hrs)
Wind speed: _____ (knots)	Next high tide: _____ (ft) at _____ (hrs)
Current velocity: _____ (kts)	Current (to) direction: _____ (°true/magnetic)
Predicted slick speed: _____ (kts)	Predicted slick direction: _____ (°true/magnetic)
Visibility: _____ (nautical miles)	Ceiling: _____ (feet) Sea state: _____ (wave height in feet)
Information source: _____	

### PREDICTING SPILL MOVEMENT

Plot spill movement on appropriate nautical chart. Using the information from the box above, predict slick direction and speed using 100% of current velocity and 3% of wind speed.	
	
Estimated distance to shore/sensitive area: _____ (nm)	
Estimated time to shore/sensitive area: _____ (hrs)	

## ESTIMATING OIL SPILL VOLUME

### Extent of spill:

- (a) Length of spill \_\_\_\_\_(nm) x Width of spill \_\_\_\_\_(nm) = Total spill area \_\_\_\_\_(nm<sup>2</sup>)
- (b) Estimate what proportion (%) of the total spill area is covered by oil: \_\_\_\_\_ (Express as decimal, % x 100)
- (c) Estimate slick area:  $\frac{\text{Total slick area (a)}}{\text{\% oil cover (b)}} = \text{Estimated slick area}$

### Estimated spill volume:

You can make this estimate using any of the following approaches:

- Get a thickness estimate from the ADIOS oil weathering model (call the NOAA SSC (206-321-3320) for assistance);
- Generate your own volume estimate of spilled oil and the area it covers (convert both volume and area to metric units and then divide the volume by the area to estimate the thickness. Use the unit conversions found in [Appendix K](#)). Convert thickness to millimeters to use [Appendix D.1](#)).
- Use your knowledge of the approximate number of barrels of oil or emulsion per acre of slick.

## DISPERSANT SPRAY OPERATION

Dispersant spray contractor name: _____		Street: _____
Dispersant name: _____	Quantity available: _____	City: _____
		State: _____ Zip Code: _____
		Phone: ( ) _____
Platform: Aircraft type: <input type="checkbox"/> Multi-engine <input type="checkbox"/> Single-engine		
Boat type: _____		
Other: _____		
Dispersant load capability (gal): _____		

**FOSC Complete:**

“Window of opportunity” for getting dispersant on the oil ([App. C 10](#)): \_\_\_\_\_ (hrs from first report of spill)

Number of daylight hours available for first day of dispersant application: \_\_\_\_\_ (hrs from first report of spill)

Time to first drop on the oil: \_\_\_\_\_ (hrs from first report of spill)

Can dispersants to be effective after day one of the spill? YES / NO / Cannot determine at this time (circle one)

Note: It might be appropriate to conduct a small dispersant test before proceeding to a full application.

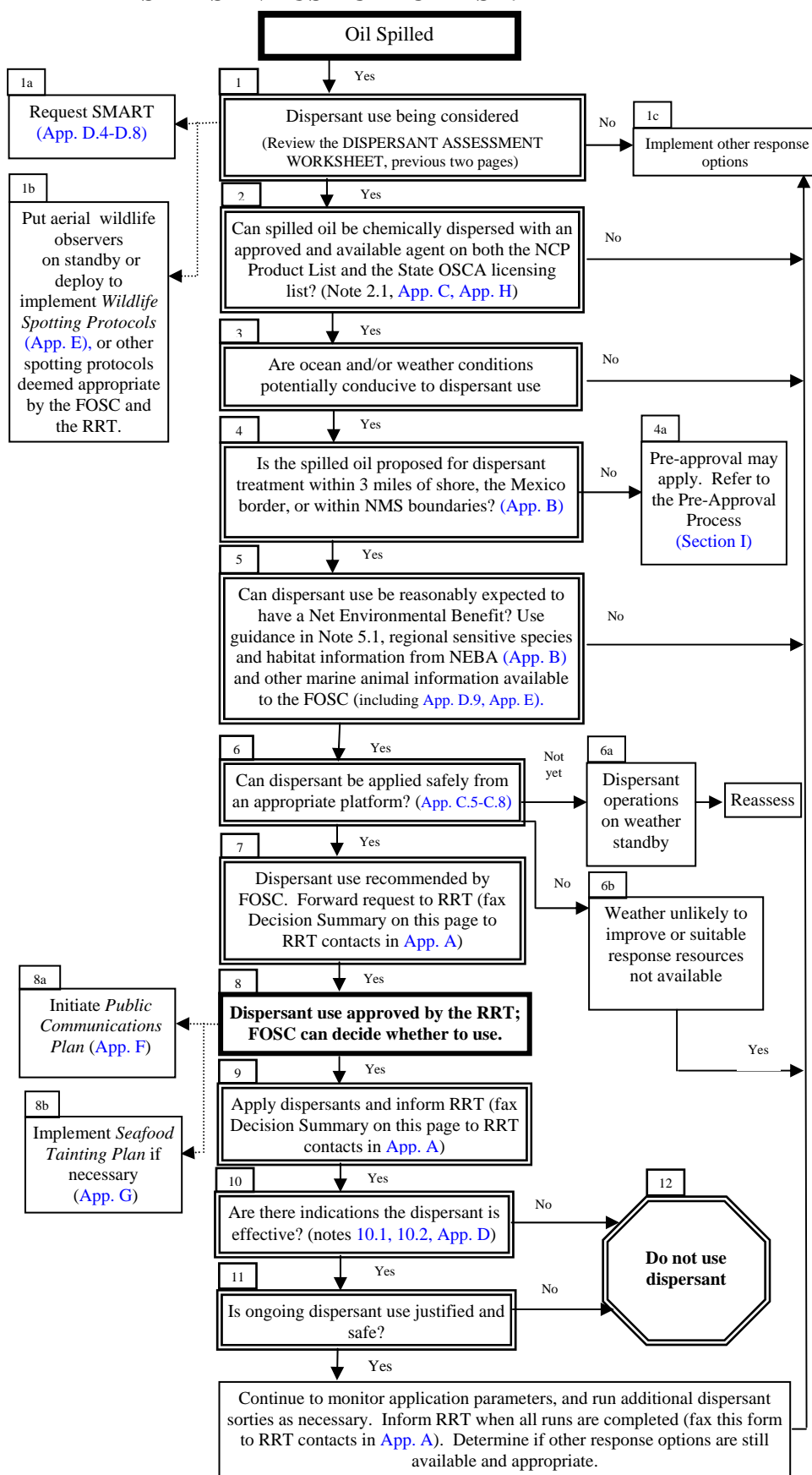
## POTENTIAL BIOLOGICAL RESOURCE IMPACTS

Using the predictive spill and weather information from the boxes above, ADIOS, the NOAA SSC, other RRT trustee agencies, aerial wildlife observers and regional resource information noted in [Appendix B](#), briefly describe potential coastal areas and resources that could be impacted from this spill.

When the spill is in a National Marine Sanctuary, Sanctuary representatives can assist with valuable resource information.

On-Water Resources:	
Shallow Subtidal Resources	
Intertidal Resources:	
Anadromous Resources:	
Significant Water Column Resources:	

# DISPERSANT USE CHECKLIST: RRT EXPEDITED APPROVAL REQUIRED ZONES



## RRT Approval Zones

### Dispersant Decision Summary

Spill location: \_\_\_\_\_

Decisions approved by: \_\_\_\_\_

Box	Decision	Time:	Date:	Initials:
1	Yes/No	_____	_____	_____
2	Yes/No	_____	_____	_____
3	Yes/No	_____	_____	_____
4	Yes/No	_____	_____	_____
5	Yes/No	_____	_____	_____
6	Yes/No	_____	_____	_____
7	Yes/No	_____	_____	_____
8	Yes/No	_____	_____	_____
9	Yes/No	_____	_____	_____
10	Yes/No	_____	_____	_____
11	Yes/No	_____	_____	_____
Run 2				
Run 3				
Run 4				
Run 5				
Run 6				
All done				
12	Do not use	_____	_____	_____

### Supplemental Decisions:

1a	Yes/No	_____	_____	_____
1b	Yes/No	_____	_____	_____
4a	Yes/No	_____	_____	_____
6a	Yes/No	_____	_____	_____
6b	Yes/No	_____	_____	_____
8a	Yes/No	_____	_____	_____
8b	Yes/No	_____	_____	_____

### Comments:

.....

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**The following boxes and checklists are to support decision-making. Complete as appropriate given time and information constraints. Do not allow completing each check-box to inadvisably delay an RRT decision.**

<b>BOX 1</b>	<p style="text-align: center;"><b>IS DISPERSANT USE BEING CONSIDERED?</b></p> <p>Dispersant use should be considered if:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Oil is likely to significantly impact birds, marine mammals, or other flora and fauna at the water surface</li> <li><input type="checkbox"/> Natural dispersion is limited</li> <li><input type="checkbox"/> Other response techniques are unlikely to be adequate, effective, or economical</li> <li><input type="checkbox"/> The oil could emulsify and form mousse or tar balls</li> <li><input type="checkbox"/> Oil is likely to significantly impact shorelines, structures and facilities (e.g., marinas, wharves)</li> <li><input type="checkbox"/> Oil is likely to significantly impact economically important resources (e.g., shellfish beds, tourist beaches)</li> <li><input type="checkbox"/> Other .....</li> </ul> <p><b>Decision: Consider dispersant use?</b></p> <p><input type="checkbox"/> Yes Make notifications in <b>Box 1a</b> Make notifications in <b>Box 1b</b></p> <p><input type="checkbox"/> No Go to <b>Box 1c</b></p> <p><b>Make a note of the decision on Dispersant Use Checklist (Page II-10)</b></p> <p style="text-align: right;"><i>From Cawthron, 2000.</i></p>
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<b>Discussion Note 1.1</b>	<p style="text-align: center;"><b>KEY BENEFITS OF DISPERSANT USE</b></p> <ul style="list-style-type: none"> <li>Dispersant use minimizes the effects of an oil spill principally by dispersing oil before it reaches shorelines or sensitive areas (e.g., wetlands, estuaries).</li> <li>Removing oil from the surface of the water reduces the potential for impacts to birds and marine mammals, and limits the action of wind on spill movement.</li> <li>Dispersants can prevent oil from sticking to solid surfaces, and enhance natural degradation.</li> <li>Dispersants can effectively treat large spills more quickly and inexpensively than most other response methods.</li> <li>Dispersants can be effective in rough water and strong currents where mechanical responses are limited.</li> <li>Effective dispersant responses can greatly reduce the quantity of oil requiring recovery and disposal.</li> <li>Dispersant use is often the only feasible response to spills that exceed mechanical response capabilities.</li> <li>Dispersant use does not generally limit other options, except oleophilic mechanical responses.</li> <li>Dispersed oil that cannot be mechanically recovered generally poses few significant environmental problems.</li> </ul> <p style="text-align: right;"><i>From Cawthron, 2000</i></p>
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<b>BOX 1a</b>	<p style="text-align: center;"><b>REQUEST SMART</b></p> <p>Immediately deploy USCG Strike Team SMART to the spill site if dispersant use is likely. Every attempt should be made by the FOSC and the Strike Team to implement the on-water component of the SMART monitoring protocols in every dispersant application. <b>Dispersant application should <u>not</u> be delayed should sea conditions, equipment failure, or other unavoidable circumstances preclude the positioning of monitoring equipment and personnel.</b> However, at a minimum, Tier 1 (visual) monitoring should occur by trained observers during any dispersant operations approved in accordance with the California Dispersant Plan. Tier 2 (on-site water column monitoring) and Tier 3 (fate and transport of the dispersed oil) SMART monitoring will be deployed as appropriate. Other information on monitoring dispersant effectiveness, including additional SMART background information, tools and report forms, is presented in <b>Appendices D-4 – D.8.</b></p> <p><b>Decision: Deploy SMART?</b></p> <p><input type="checkbox"/> Yes Use contact information in <a href="#">Appendix A</a>. Go to <b>Box 1b</b>. Estimated arrival time: _____</p> <p><input type="checkbox"/> No Note reason why not deployed. .... Go to <b>Box 1b</b> or <b>Box 1c</b> as appropriate.</p> <p><b>Make a note of the decision on Dispersant Use Checklist (Page II-10)</b></p>
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**BOX 1b****PLACE AERIAL WILDLIFE OBSERVERS ON STANDBY OR DEPLOY THEM TO IMPLEMENT THE WILDLIFE SPOTTING PROTOCOLS**

Consider deploying trained wildlife spotters in initial spill overflight aircraft so that they can determine if the presence of marine animals in the spill or dispersant application zones could influence spray pattern decisions by the FOSC. The goal is to minimize over-spray onto unaffected animals. Wildlife spotters should use the forms and procedures given in the *Wildlife Spotting Protocols* ([Appendix E](#) and [Appendix D.9](#)). The FOSC will decide how subsequent and systematic wildlife spotting efforts can be safely conducted with the aerial resources available.

**Decision: Notify/deploy aerial wildlife spotters?**

- ☐ Yes Use wildlife spotter contact information in [Appendix E](#). Go to **Box 2**.  
☐ No Note reason why wildlife spotters not deployed .....

.....  
**Make a note of the decision on Dispersant Use Checklist (Page II-10)**

Reconsider under **Box 8**.

**BOX 1c****IMPLEMENT OTHER RESPONSE OPTIONS**

Consider all response options to identify which option, or combination of options, is most appropriate. The following options are described in the Area Contingency Plan (Section 1640) and the Regional Contingency Plan (Section 1007.05).

- |   |  |
|---|--|
| <input type="checkbox"/> No action other than monitoring        | <input type="checkbox"/> Clean-up of oil from shorelines |
| <input type="checkbox"/> Containment and recovery of oil at sea | <input type="checkbox"/> <i>In situ</i> burning          |

*From Cawthron,  
2000*

**BOX 2****CAN SPILLED OIL BE CHEMICALLY DISPERSED WITH AN APPROVED AND AVAILABLE AGENT ON BOTH THE NCP PRODUCT LIST AND THE STATE OSCA LICENSING LIST?**

A NCP Product List may be found in [Appendix H](#). Updated NCP Product Lists can be accessed via the EPA representative on the RRT ([Appendix A](#)), by calling the Emergency Response Division of the U.S. EPA (202-260-2342) OR ACCESSING THE Internet at <http://www.epa.gov/oilspill/ncp/dsprnts.htm>

The State OSCA licensed dispersants may also be found in [Appendix H](#), by calling the State OSPR representative on the RRT ([Appendix A](#)) or ) or accessing the Internet at [http://www.dfg.ca.gov/ospr/reg\\_com/osca.html](http://www.dfg.ca.gov/ospr/reg_com/osca.html)

**Decision: Can this oil be dispersed with an approved and available agent?**

- ☐ Yes Go to **Box 3**.  
☐ No Go to **Box 1c**

**Make a note of the decision on Dispersant Use Checklist (Page II-10)**

*Taken in part from Cawthron,*

**Discussion Note 2.1****OIL DISPERSIBILITY (Also see App. C.10 for Window of Opportunity)**

Three types of oils are typical of those produced or transported in California offshore waters: a) crude oils produced in California Outer Continental Shelf waters; b) oils imported from Alaska and foreign countries into California ports; and c) fuel oils that could be spilled from a variety of marine industrial activities (*e.g.*, fuel tanks from ships, cargoes of small tankers). Dispersants only work if the spilled oil has a relatively low viscosity at the time of treatment.

**Appendices C.1 and C.2 show the California platform-produced oils and tankered oils, respectively.**

Most oils produced from offshore platforms are heavy, and border on the range of oils that are considered to be difficult or impossible to disperse. The oils transported by tanker (1999-2001 data) include two-three dozen different types of oil (only the most common are listed in [Appendix C.2](#)). The most important is Alaska North Slope crude, which represents 50% of each annual total. Based on API gravity information, these oils appear to be dispersible when fresh.

- The most important criterion for dispersant use is whether the oil is dispersible.
- The best indication of oil dispersibility is from specific oil weathering and dispersion data from field trials.
- Potential dispersibility can be *estimated* from physical properties of oils, under different oil weathering and spill scenarios (*e.g.*, ADIOS, Table 2.1 below). The ADIOS computer database predicts oil dispersion based on physical and chemical properties of spilled oil under specified spill conditions.
- Dispersant use should not be rejected exclusively on the basis of predictive models

**Generally, if:**

- Oil is able to spread on the water, it is likely to be dispersible.
- Viscosity is 2000 cSt, dispersion is probable.
- Viscosity is >2000 cSt, dispersion is possible.
- Viscosity is >5000 cSt, dispersion is possible with concentrated dispersant (*e.g.*, Corexit 9500).
- Sea temperature is >10° C below oil pour point, dispersion is unlikely.

**Potential dispersion may also be assessed using tables in [Appendix C](#).**

**Limitations of predicting dispersion:**

- Using generic values of viscosity and/or pour point to predict dispersion (*e.g.*, ADIOS, [Appendix tables C.3 and C.4](#)) can underestimate the potential for oil to be dispersed.
- Most models are based on limited oil weathering, emulsification or dispersion data, therefore estimated windows of opportunity may be inaccurate.

*Taken in part from Cawthron, 2000 and S.L. Ross, 2002*

**Table 2.1 ADIOS (AUTOMATED DATA INQUIRY FOR OIL SPILLS) COMPUTER DATABASE**

Use the **DISPERSANT ASSESSMENT WORKSHEET** and the NOAA SSC (206-321-3320) for the information needed by ADIOS, or use the form below. The NOAA SSC should also be able to assist with ADIOS.

Copies of ADIOS are available from the NOAA website: <http://response.restoration.noaa.gov/software/adios/adios.html>

Oil/product name: _____	Wind speed: _____ (knots)
Amount spilled: _____ (gal or bbl)	Wave height: _____ (m)
Type of release: _____	Water temp.: _____ (°C)
<input type="checkbox"/> Instantaneous	Water salinity: _____ (ppt)
<input type="checkbox"/> Continuous	

**Important limitations on the use of ADIOS:** ADIOS predicts dispersibility based on estimates of oil properties (including emulsification) under different conditions. As emulsification data are scarce, **predicted rates of dispersion may be different than actual rates of dispersion**. ADIOS is intended for use with floating oils only, and does not account for currents, beaching, or containment of oil. ADIOS is unreliable for very large or very small spills. It is also unreliable when using very high or very low wind speeds in modeling the spill.

**BOX 3****ARE OCEANOGRAPHIC AND/OR WEATHER CONDITIONS POTENTIALLY CONDUCTIVE TO DISPERSANT USE?**

Does the available technical information indicate that the existing oceanographic (*e.g.*, surface current direction and speed, wave and chop height) and weather (*e.g.*, wind direction and speed, visibility, ceiling height) conditions are suitable for a successful dispersant application?

Use the following resources:

- ☐ Information on the DISPERSANT ASSESSMENT WORKSHEET
- ☐ Consultation with the NOAA Scientific Support Coordinator (206-321-3320)
- ☐ Information resources and web sites noted in [Appendix A](#)
- ☐ Information from aerial overflights
- ☐ Information from ADIOS

**Decision: Are ocean and weather conditions suitable for a dispersants application?**

- ☐ Yes    Go to **Box 4.**
- ☐ No     Go to **Box 1c**

**Make a note of the decision on Dispersant Use Checklist (Page II-10)**

**BOX 4****IS THE SPILLED OIL WITHIN 3 MILES FROM SHORE, A FEDERAL BOUNDARY OR WITHIN NMS BOUNDARIES?**

A full-page statewide nautical chart indicating the area three nautical miles from shore and the areas within National Marine Sanctuaries (Gulf of the Farallones, Cordell Banks, Monterey, Channel Islands) is in Chart 4.1 below. Regional charts, with dispersant approval zones noted, are in [Appendix B](#).

Plot the position of the spill on the appropriate nautical chart, draw a circle around the spill source with a 10 nautical mile radius as a worst-case scenario for surface movement. Hash mark any area within the circle that is in waters 3 nautical miles from shore or within a National Marine Sanctuary. This is considered the dispersant operational area.

**Decision: Is the spilled oil within an RRT Expedited Approval Required zone?**

- ☐ Yes    Go to **Box 5.**
- ☐ No     Pre-Approval may apply. Go to **Box 4a.**

**Make a note of the decision on Dispersant Use Checklist (Page II-10)**

**BOX 4a****PRE-APPROVAL MAY APPLY; REFER TO THE PRE-APPROVAL PROCESS.**

The request for dispersant use may not require a case-by-case RRT approval and may fall within the parameters of the pre-approval guidelines for the use of dispersants in RRT Regional IX. Review the Pre-Approval Guidelines and begin the pre-approval process if appropriate ([see Section I](#)).

**NEW CHART FOR RRT EXPEDITED APPROVAL ZONES IS BEING DEVELOPED**

**BOX 5****CAN DISPERSANT BE REASONABLY EXPECTED TO HAVE A  
NET ENVIRONMENTAL BENEFIT?**

Use the regional sensitive species and habitat information from the Net Environmental Benefit Analyses for each major coastal area in which dispersant use may have an impact.

Consider:

- ☐ The type and value of habitat potentially affected.
- ☐ The sensitivity of affected resources to oil, and to different oil response strategies.
- ☐ Natural recovery rates of affected species and habitats.
- ☐ Likely oil persistence and degradation rates with and without dispersant use.
- ☐ Potential oil toxicity on surface water species compared to water column and/or seafloor species.

Dispersant use is generally not appropriate in areas with limited water circulation and flushing, near aquaculture facilities, shellfish beds and fish-spawning grounds, and around seawater intakes.

**Decision: Will the dispersant use have a net environmental benefit?**

- ☐ Yes Go to **Box 6**.
- ☐ No Go to **Box 1c**.

**Make a note of the decision on Dispersant Use Checklist (Page II-10)**

**Discussion Note 5.1****ASSESSING NET ENVIRONMENTAL BENEFIT**

The most important question to answer is: **Will dispersant use significantly reduce the impact of the spilled oil?**

- Rapid decisions on use are essential as dispersant must be applied quickly to be effective.
- Decision-makers must consider the various environmental, social, economic, political and cultural factors unique to each spill.
- Tradeoffs will be necessary, as no response is likely to satisfy all parties and protect all resources. The ecological impacts of oil are generally longer-lasting and more persistent than most other impacts.
- Ecological effects will be due primarily to the spilled oil. Dispersant applied at recommended rates is unlikely to cause significant adverse effects, even in multiple applications.
- Oil dispersed into greater than 10m or water will quickly dilute to levels where acute toxic effects are unlikely.
- Few acute toxic effects have been reported for crude oil dispersed into less than 10m of well-flushed water.
- Small spills of light fuels seldom require dispersant use.

**BOX 6****CAN DISPERSANT BE APPLIED SAFELY FROM AN APPROPRIATE PLATFORM?**

Use the information in the **DISPERSANT ASSESSMENT WORKSHEET** to evaluate which application platform(s) will be most effective, given the following particular considerations:

- The amount of oil spilled;
- The location of the operational area;
- The volume of available dispersants;
- The timeframe in which the required equipment can be on-scene.

Assume for planning purposes that the weather information on the **DISPERSANT ASSESSMENT WORKSHEET** will remain the same during the timeframe in which this decision is operating. At the earliest opportunity, contact the NOAA SSC (206-321-3320) for more detailed and updated weather information, but do not delay this decision process for the NOAA SSC weather input. Weather information may also be available from resources noted in [Appendix A](#). See [Appendix C](#) for specific information on dispersant application platforms.

**Decision: Is there an appropriate application platform for a dispersant operation?**

	Yes	(Type)	No
C-130/ADDS Pack	<input type="checkbox"/>		<input type="checkbox"/>
DC-4	<input type="checkbox"/>		<input type="checkbox"/>
Other large multi-engine airplane	<input type="checkbox"/>	.....	<input type="checkbox"/>
Cessna AT-802	<input type="checkbox"/>		<input type="checkbox"/>
Other single-engine airplane	<input type="checkbox"/>	.....	<input type="checkbox"/>
Helicopter	<input type="checkbox"/>	.....	<input type="checkbox"/>
Work boat	<input type="checkbox"/>	.....	<input type="checkbox"/>
	Go to		Go to
	<b>Box 7</b>		<b>Box 6a</b>

**Make a note of the decision on Dispersant Use Checklist (Page II-10)**

*Taken in part from Cawthron, 2000 and S.L. Ross, 2002*

**Discussion Note 6.1****CURRENT LOGISTICS FOR A CALIFORNIA DISPERSANTS APPLICATION**

Use the information on the **DISPERSANT ASSESSMENT WORKSHEET** to consider the following:

- ☐ Is the selected dispersant available in the quantity needed?
- ☐ Can the estimated “window of opportunity” for getting the dispersant on the oil be met?
- ☐ Can the dispersant and application resources get to the spill scene on time?
- ☐ Will there be enough daylight hours for an effective dispersant application?

Refer to [Appendix C](#) for more specific regional dispersant resource information.

**Discussion Note 6.2****GENERAL SAFETY ISSUES**

- The FOSC is responsible for ensuring that health and safety requirements are adequately addressed during a response.
- Individuals should not engage in activities that they are not appropriately trained to perform.
- Individuals are expected to adhere to safety procedures appropriate to the conditions they are working under and/or are included in a dispersant-specific Site Safety Plan Annex.
- Vessel/aircraft operators are expected to define appropriate operational limits and safety and maintenance requirements for their craft.
- Vessels and response resources should be properly maintained and undergo proper decontamination procedures.
- Apply dispersants only if there is no significant risk to response personnel (*e.g.*, ignition risk, operational hazards).
- Ensure the appropriate personal protective equipment (PPE) is available.
- Ensure that application aircraft and vessels remain within standard operating limits.
- Each person involved in a response is required to take personal responsibility for his or her safety. The FOSC may appoint a Safety Officer and request development of a specific Site Safety Plan Annex. Key safety aspects to be considered in the plan may include:
  - Physical hazards (*e.g.*, waves, tides, unstable or slippery surfaces)
  - Heavy machinery and equipment
  - Chemical hazards (*e.g.*, oil and dispersant exposure)
  - Atmospheric hazards (*e.g.*, fumes, ignition risks)
  - Confined spaces\PPE
  - Noise
  - Fatigue
  - Heat/cold stress
  - Wildlife (bites/stings)
  - Cleanup facilities
  - Medical treatment

**HUMAN SAFETY OVERRIDES ALL OTHER CONSIDERATIONS DURING A RESPONSE**

*From Cawthron, 2000*

**BOX 6a****DISPERSANT OPERATIONS ON WEATHER STANDBY**

Consult with appropriate RRT IX members (USCG/District 11 Co-Chair, EPA, DOI, DOC and OSPR (See [Appendix A](#) for contact information) to notify them that dispersants are being considered, but delayed due to weather.

**Decision: Has the weather improved to the point where dispersants can be applied?**

- ☐ Yes      Go to **Box 7**
- ☐ No      Continue to **reassess** (until/unless time window  
for successful application closed) or  
Go to **Box 6b**

Date	Time
.....	.....
.....	.....

**BOX 6b****WEATHER UNLIKELY TO IMPROVE OR SUITABLE RESPONSE RESOURCES NOT AVAILABLE**

There will be spill situations where dispersant use may be appropriate but weather conditions and available resources will not allow dispersants to get on the oil within the appropriate weather window. In these cases, dispersant use will need to be abandoned and other response options considered instead.

Go to **Box1c**

Date	Time
.....	.....



Once the FOSC has completed as much as possible of the DISPERSANT ASSESSMENT WORKSHEET and the DISPERSANT USE CHECKLIST and completed the dispersant decision summary, the FOSC will forward a request, along with any other requested data, to the RRT via a phone conference. Based on the information provided, the RRT will provide an approval/disapproval decision for dispersant use within 2 hours of the request.

## BOX 8 DISPERSANT USE APPROVED BY THE RRT

- ☐ The SMART controller/observer should be over the spray site before the start of the operation. If possible, a DOI/DOC-approved marine mammal/turtle and pelagic/migratory birds observation specialist will accompany the SMART observer, but in any event, operations will not be delayed for these individuals.
- ☐ Dispersants cannot be applied to any diesel spill in the San Diego Area Contingency Plan area.
- ☐ Personnel protective equipment for personnel on-site will conform to the appropriate dispersant's Material Safety Data Sheet (MSDS).
- ☐ Dispersant application aircraft will maintain a minimum 1000-foot horizontal separation from rafting flocks of birds. Caution will be taken to avoid spraying over marine mammals and marine turtles (see [Appendix A](#) for resource agency contact information).
- ☐ If the dispersant application platform is a boat:
  - The following ASTM standards apply to systems involving spray arms or booms that extend over the edge of the boat and have fan-type nozzles that spray dispersant in a fixed pattern:
    - [ASTM F 1413-92](#): Standard Guide for Oil Spill Dispersant Application Equipment: Boom and Nozzle Systems
    - [ASTM F-1460-93](#): Standard Practice for Calibrating Oil Spill Dispersant Application Equipment Boom and Nozzle Systems
    - [ASTM F 1737-96](#): Standard Guide for use of Oil Spill Dispersant Application Equipment During Spill Response: Boom and Nozzle Systems.
  - Boat-based systems using a fire monitor and/or fire nozzle shall avoid a straight and narrow "firestream" flow of dispersant directly into the oil. There are no applicable ASTM standards for these systems at this time (December 2003).

**BOX 8a****INITIATE PUBLIC COMMUNICATIONS PLAN**

Once a decision to use dispersants is made, it is critical that a public communications plan be implemented ([Appendix F](#)). The general public as well as stakeholders must be made aware of the decisions to utilize dispersants and a mechanism must be put into place for reliable and continuous updates ([Appendix F.3](#)).

An initial press conference should be held which outlines the decision to utilize dispersants, provides background and scientific information as well as any environmental and safety considerations. Press packet information can be found in [Appendix F.1](#).

A town hall meeting should be scheduled as soon as possible to provide a mechanism for sharing of information as well as addressing public concerns and fears. [Appendix F.2](#) provides guidelines for preparation of a town hall meeting. Areas that must be adequately addressed include the following:

- Seafood tainting concerns posed by the use of dispersants ([Appendix G](#)).
- Risk communication ([Appendix F.2](#))
- Net environmental benefit analysis conducted and species of special concern.
- Monitoring policies established for the spill.

**BOX 8b****CONSULT SEAFOOD TAINING PLAN**

- Refer to [Appendix G](#) for key points to consider regarding Seafood tainting, as well as information on accessing NOAA and State of California resources for assessing the tainting risk

**BOX 9****APPLY DISPERSANTS AND INFORM RRT**

- ☐ Using the information on estimated oil spill volume from the **DISPERSANT ASSESSMENT WORKSHEET** and Discussion Note 9.1 below to:

- Determine the dispersant application ratio (usually 1:20), and
- Calculate the volume of dispersant required ([Appendix D.1](#)).

- ☐ Record the details on the Dispersant Application Summary Form ([Appendix D.2](#));

- ☐ Mobilize application team;

- ☐ If not already done, mobilize SMART. Some blank SMART forms are included in [Appendix D](#) for use by other trained professionals, if appropriate and when approved by the FOSC.

- ☐ Inform RRT (see [Appendix A](#) for contact information).

**Decision: Dispersants applied?**

- ☐ Yes     Go to **Box 10**.

- ☐ No     Explain.

**Make a note of the decision on Dispersant Use Checklist (Page II-10)**

*In part from Cawthron, 2000*

## Discussion Note 9.1

## GENERAL APPLICATION INFORMATION

- The FOSC has final responsibility for operational aspects of dispersant applications.
- Dispersant must only be applied by experienced spray applicators.
- Dispersant must be applied in accordance with manufacturer instructions, unless approved otherwise by the FOSC.
- The persons applying dispersant are responsible for the calibration and operation of the spraying system, and the safety and maintenance of the application platform.
- Droplet size is the key variable influencing dispersant effectiveness. Undersized droplets (*e.g.*, fog or mist) will be lost through drift and evaporation. Oversized droplets will punch through the oil and be lost in the water column.
- Dispersants pre-diluted in water are less effective than undiluted dispersant.
- Only undiluted concentrate dispersant is applied from aircraft. Dispersant should, where possible, be applied into the wind and parallel with the slick.
- Dispersant should be applied in a methodical and continuous manner to ensure the entire target area is treated.
- Spraying effort should concentrate on the thickest sections, and/or the leading edges, of oil that threaten sensitive areas.
- Thick portions of the slick may require several applications.
- Oil sheen (oil less than approximately .001 inch or .02 mm thick) should not be sprayed with dispersant.

### Regarding the relationship between Dispersant-to-Oil Ratio (DOR) and the concentration of oil being treated:

- Regardless of DOR ratios suggested by dispersant manufacturers, there are many factors that influence dispersibility (*e.g.*, oil characteristics, degree of weathering, water salinity, sea state) that may make it very difficult for any “user” to select an appropriate DOR for the conditions faced on the day of a specific spill
- The variability of slick thickness (or oil concentration) is such that one can never really characterize the actual oil concentration for more than a few seconds within the speed and swath constraints of a particular application system.
- With most application systems, one is usually overdosing and underdosing as the system moves through light, heavy and sometimes “no” oil on the water surface.
- The best estimate of the average oil thickness (or average volume of oil per unit area) must be used.
- Crude oil that is dark in color and thick enough to merit any response is generally between .001 inch (.017 mm) thick and .01 inch (0.25 mm). Crude oil emulsion begins to form at .01 inch (0.25 mm), and tar balls at .1 inch (2 mm). See [Appendix D.1](#) for more information.
- Given that precise spray parameters are extremely difficult to achieve, dispersant applicators generally use about 5 gallons of dispersant per acre on their first run. This is a “middle-of-the-road” concentration in most situations of 2 to 3 barrels of oil per acre (or ~ 100 gallons per acre) following the initial rapid spreading phase. With a common accepted DOR of 1:20, the recommended dosage would be 1/20 x 100, or 5 gallons of dispersant per acre.
- Area, volume and thickness can be related with the following expression:

$$10^4 \times \text{Area (hectare)} \times \text{Thickness (mm)} = \text{Volume (liters)}$$

or

$$\text{Volume (liters)/Area (hectares)} = 10^4 \times \text{Thickness (mm)}$$

► To convert liters/hectare to gallons/acre, multiply by 0.107

► To convert liters/hectare to gallons/square kilometer, multiply by 26.42

► These values (in any units) multiplied by the DOR (as a fraction, *e.g.*, 1:5 = 1/5 or .2) will then yield the Desired Dosage (in those units) for that value of DOR.

- Refer to [Appendix D.1](#) for some pre-calculated values.

*From Cawthron, 2000 and Al Allen (Spilltec), 2003 personal communication*

**Discussion Note 9.2****AERIAL APPLICATION**

This general aerial application guide is intended simply to highlight key issues. The FOSC will coordinate and oversee operational aspects of aerial dispersant applications.

- Aircraft applications should always include pump driven spray units.
- Dispersant droplet size should be between 400 and 1000 microns.
- Commercial aircraft spray nozzles generally range between 350 and 700 microns.
- 1000 micron spray nozzles may be needed for use on viscous oils.
- Nozzles should achieve an application rate of between 5.3 gallons per acre (1:20 ratio)
- Spray nozzles should be installed to discharge directly aft.
- Underslung buckets on helicopters should be mounted so the pilot can see the ends of the spray booms in flight.
- The altitude of the aircraft should be as low as possible.

*From Cawthron, 2000*

**Discussion Note 9.3****BOAT APPLICATION**

- Spray booms should be mounted as far forward as possible to prevent oil being moved aside by the bow wave before being sprayed. This then utilizes the mixing energy of the bow wave to break up the oil.
- Spraying systems should be set so that the spray pattern is flat, striking the water in a line perpendicular to the direction of the boat's travel.
- The fan-shaped sprays from adjacent nozzles should be set as low as possible, overlapping just above the oil/water surface, with the inboard spray striking the hull just above the waterline.

**Undiluted dispersants**

- Air blast sprayers and modified spray pumps can be used to apply undiluted concentrated dispersants and conventional dispersants.
- Treatment rate is usually constant and determined by nozzle size and spray pressure.
- Calibration and use of an appropriate droplet size is critical to effective applications.

**Pre-diluted dispersants**

- Concentrated dispersants can be applied after pre-dilution in seawater, but will be less effective.
- The dispersant : water ratio should be equal to, or greater than, 10%
- Applications through ship's fire-fighting equipment are controlled by opening or closing the dispersant supply. Vessel speed is used to control the treatment rate.
- Dual pump systems for dispersant and seawater supplying spray booms allow the dilution rate to be adjusted.
- Boat speed is the main determinant of dispersant dose rate (reduce boat speed to increase the dose rate).
- Boat speed should be in the order of 5 knots for fresh spills of liquid crude or fuel oil, which assumes that the oil has spread to 0.1 mm thick.
- With reduced boat speeds, the required application rate per acre or km<sup>2</sup> can be maintained by reducing pump speed.

*From Cawthron, 2000*

**BOX 10****ARE THERE INDICATIONS THE DISPERSANT IS EFFECTIVE?**

- ☐ Acquire information from dispersant monitoring team (SMART team or other FOSC-designated monitors).
- ☐ Review dispersant monitoring results after each dispersant application.
- ☐ Determine if dispersant application is effective.
- ☐ Determine if chemical dispersion is significantly greater than natural dispersion.
- ☐ Assess whether changing application parameters could make the application more effective.

**Decision: Is the dispersant effective?**

- ☐ Yes     Go to **Box 11**
- ☐ No      See Discussion Note 10.2 and return to **Box 9**, or Go to **Box 12**

**Make a note of the decision on Dispersant Use Checklist (Page II-10)**

*From Cawthron, 2000*

**Discussion Note 10.1****ASSESSING DISPERSANT EFFECTIVENESS**

- Dispersant applications must be monitored to confirm whether or not dispersant use is effective, and to determine the fate and transport of treated oil.
- Dispersant applications should not be delayed simply because monitoring is not in place.
- Visual observation is the minimum level of monitoring. Observations teams may use the forms in [Appendix D](#).
- There will be very few instances where a dispersant application is possible but visual monitoring is not.
- Because dispersed oil plumes are often highly irregular in shape and thickness, it can be difficult to accurately estimate dispersant efficiency.
- The appropriate dispersant application dose depends on the oil thickness (see [Appendix D.1](#) for common dose rates based on oil thickness). Slicks are generally not of uniform thickness, and it is not always possible to distinguish among thicker and thinner portions of the same slick. It is therefore possible to apply too much or too little dispersant to some parts of a slick. Because over- and under-dosing can lead to variations in effectiveness, these variations should be noted.
- On-site monitoring of oil dispersed in the water column should support visual monitoring whenever possible. See [Appendix D](#) for additional information and forms.
- Decisions to terminate operations due to poor effectiveness should ideally be based on on-site monitoring results.
- A visible coffee-colored cloud in the water column indicates the dispersant is working.
- A milky-white plume in the water column can indicate excessive dispersant application.
- When dispersant is working, oil remaining on the water surface may also change color.
- A difference in the appearance of treated and untreated slicks indicates dispersion is likely.
- Absence of a visible cloud in the water column makes it difficult to determine whether the dispersant is working. When the water is turbid, you may not be able to see a plume. Oil remaining at the surface and sheens can also obscure an ability to see oil dispersing under the slick.
- Successful dispersion can occur with no visible indication of dispersion.
- A subsurface plume may not form instantly once dispersant has been applied. In some cases (*e.g.*, emulsified oil) it can take several hours for a plume to form. In other cases, a visible plume may not form, and you may wish to use sampling to learn whether dispersion has occurred.
- Boat wakes may physically part oil, falsely indicating successful dispersion. Mechanically dispersed oil will re-coalesce and float to the surface.
- Dispersants sometimes have a herding effect on oil after initial applications, making a slick appear to be shrinking when, in fact, the dispersant is “pushing” the oil together. The effect results from the surfactants in the dispersant, which causes a horizontal spreading of thin oil films. This can cause parts of a slick to seem to disappear from the sea surface for a short time.

*From Cawthron 2000 and NOAA Oil Spill Job Aids*

**Discussion Note 10.2****WHEN DISPERSANT IS NOT EFFECTIVE**

If monitoring shows dispersion does not appear effective, review all aspects of the application and monitoring for possible reasons why. Aspects to consider include:

- Dispersant formulation
- Application ratios (increase or decrease oil: dispersant ratio)
- Application methods
- Monitoring methods
- Interpretation of monitoring results
- Oil weathering
- Weather conditions

*From Cawthron, 2000*

**BOX 11****IS ONGOING DISPERSANT USE JUSTIFIED AND SAFE?**

All of the following must apply to justify ongoing dispersant use:

- ☐ The spill can be chemically dispersed with an approved and available agent (see **Box 2** and **Appendix H**);
- ☐ Oceanographic and weather conditions are potentially conducive to dispersant use (see **Box 3** and DISPERSANT ASSESSMENT WORKSHEET);
- ☐ The dispersant will have a net environmental benefit (see **Box 5**);
- ☐ The dispersant can be applied safely (see **Box 6**), with suitable weather (**Box 6a**) and available resources (**Box 6b**);
- ☐ The dispersant is effective (see **Box 10**).

**Decision: Continue with dispersant use?**

- ☐ Yes     Go to **Box 9**
- ☐ No      Go to **Box 12**

There will be a point when dispersants are no longer effective.

**BOX 12****DO NOT USE DISPERSANT**

Dispersants should not be used if **any** of the following apply:

- ☐ The spill cannot be chemically dispersed with an approved and available agent (see **Box 2** and);
- ☐ Oceanographic and weather conditions are not potentially conducive to dispersant use (see **Box 3** and DISPERSANT ASSESSMENT WORKSHEET);
- ☐ The dispersant will not have a net environmental benefit (see **Box 5**);
- ☐ The dispersant cannot be applied safely (see **Box 6**), with suitable weather (**Box 6a**) or available resources (**Box 6b**);
- ☐ The dispersant is not significantly more effective than natural dispersion or other response options (see **Box 10**).

**IF DISPERSANT USE IS CONSIDERED INAPPROPRIATE, CONSIDER OTHER RESPONSE OPTIONS.**

## DISPERSANT EXPEDITED APPROVAL REQUEST RECORD OF DECISION

Subpart J of the National Contingency Plan (NCP) provides that the FOSC, with the concurrence of the EPA representative to the Regional Response Team and the State with jurisdiction over the navigable waters threatened by the oil discharge, and in consultation with the U.S. Department of Commerce (DOC) and U.S. Department of the Interior (DOI) natural resource trustees, when practicable, may authorize the use of dispersants on oil discharges; provided, however, that such dispersants are listed on the NCP Product Schedule. The EPA has been delegated authority to maintain a schedule of chemical countermeasures that may be authorized for oil discharges in accordance with procedures set forth in Section 300.900 of the NCP.

The Region IX, Regional Response Team has established dispersant expedited approval zones within waters of the State, any waters within a marine sanctuary waters and all waters within three miles of landfall. Any dispersant use within these zones requires that the designated Federal On-Scene Coordinator request approval by the RRT. For purposes of this record of decision, the designated FOSC has completed the "Expedited Dispersant Use Checklist" and has determined that the oil spill, Name of Oil Spill Incident, meets the criteria outlined within the checklist and formally requests a dispersant use decision from the RRT.

\_\_\_\_\_  
Federal On-Scene Coordinator  
United States Coast Guard

\_\_\_\_\_  
Date

California statute requires that emergency response operations utilize the Incident Command System. For marine oil spill response, a joint Unified Command Structure is implemented consisting of the Federal On-Scene Coordinator, the State On-Scene Coordinator and the Response Party and outlined in the Memorandum of Understanding between the United States Coast Guard and the California Department of Fish and Game, Office of Spill Prevention and Response. For purposes of this record of decision, request for the use of dispersants is formally requested by FOSC and the dispersant use checklist was completed within a Unified Command Structure and agreed upon by the State On-Scene Coordinator and the representative of the Responsible Party.

\_\_\_\_\_  
State On-Scene Coordinator  
Office of Spill Prevention and  
Response  
State of California

\_\_\_\_\_  
Responsible Party Representative

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

## REFERENCES CITED

- Etkin, Dagmar Schmidt. 1999. Oil Spill Dispersants: From Technology to Policy. Cutter Information Corp, Arlington, MA.
- ExxonMobil Dispersant Guidelines. 2000. ExxonMobil Research and Engineering Company.
- Mearns, A.J. & R.Yender, 1997. A summary of a NOAA workshop on management of seafood issues during an oil spill response. Proc. Arctic and Marine Oil Spill Program Technical Seminar. Environment Canada, Vancouver, pp. 203-214.
- Reilly, T.I. and R.K York. 2001. Guidance on Sensory Testing and Monitoring of Seafood for Presence of Petroleum Taint Following an Oil Spill. NOAA Technical Memorandum NOS OR&R 9.107pp.
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- State of California, Office of Emergency Services. 2001. Risk communication Guide for State and Local Agencies. 17pp.
- Stevens, Leigh. 2000. Oil Spill Dispersants: Guidelines for use in New Zealand. Prepared for Maritime Safety Authority of New Zealand.
- Wildlife Response Plan Appendices of the California Area Contingency Plan. Version 2, October 2003.
- Yender,R., J. Michel, and C. Lord. 2002. Managing Seafood Safety After an Oil Spill Seattle: Hazardous Materials Response Division., Office of Response and Restoration, National Oceanic and Atmospheric Administration. 72 pp.

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Resources from Internet World Wide Web sites:

NOAA Oil Spill Job Aids  
(web links of 12/18/03)

[http://response.restoration.noaa.gov/job\\_aid/glossary.html](http://response.restoration.noaa.gov/job_aid/glossary.html)  
<http://response.restoration.noaa.gov/oilaid/spiltool>  
[http://response.restoration.noaa.gov/disp\\_aid/remember.html](http://response.restoration.noaa.gov/disp_aid/remember.html)  
[http://response.restoration.noaa.gov/disp\\_aid/checklist.html](http://response.restoration.noaa.gov/disp_aid/checklist.html)  
<http://response.restoration.noaa.gov/oilaid/OilatSea.pdf>  
<http://response.restoration.noaa.gov/oilaid/SMART/SMART.html>



## APPENDIX A

### CONTACT NUMBERS AND RELEVANT WEB SITES

#### A.1 Agencies and Institutions

	<u>Web Address</u>	<u>Phone</u>
To Report Marine Pollution/Spills		800-424-8802
California Office of Emergency Services		800-852-7550
<b>U.S. Coast Guard</b>		
Marine Safety Offices		
San Francisco	<a href="http://homeport.uscg.mil/sanfrancisco">http://homeport.uscg.mil/sanfrancisco</a>	510-437-2956
Los Angeles-Long Beach	<a href="http://homeport.uscg.mil/lalb">http://homeport.uscg.mil/lalb</a>	310-732-2000
San Diego	<a href="http://homeport.uscg.mil/sandiego">http://homeport.uscg.mil/sandiego</a>	619-683-6500
Weather and surf		619-289-1212
<b>National Oceanic and Atmospheric Administration &amp; NOAA National Weather Service</b>		
Scientific Support Coordinator for California (Jordan Stout)		206-321-3320
Pager		800-759-8888 pin 5798818
Mobile		206-321-3320
Ocean Prediction Center	<a href="http://www.opc.ncep.noaa.gov">http://www.opc.ncep.noaa.gov</a> or <a href="http://tidesandcurrents.noaa.gov/">http://tidesandcurrents.noaa.gov/</a>	
Tide Predictions and Coastal Water Temperature Guide	<a href="http://tidesandcurrents.noaa.gov/">http://tidesandcurrents.noaa.gov/</a>	
Nautical Charts	<a href="http://www.nauticalcharts.noaa.gov">http://www.nauticalcharts.noaa.gov</a>	
Physical, Chemical and Geological Ocean Data	<a href="http://www.ngdc.noaa.gov">http://www.ngdc.noaa.gov</a> or <a href="http://www.ncddc.noaa.gov">http://www.ncddc.noaa.gov</a>	
NOAA Trajectories, ESI maps, Job aids, etc.	<a href="http://response.restoration.noaa.gov">http://response.restoration.noaa.gov</a>	
National Weather Service – Local Offices and Forecasts		
Eureka	<a href="http://www.wrh.noaa.gov/eka/">http://www.wrh.noaa.gov/eka/</a>	707-443-6484
SF/Monterey	<a href="http://www.wrh.noaa.gov/mtr">http://www.wrh.noaa.gov/mtr</a>	831-656-1725
Oxnard/Los Angeles	<a href="http://www.nwsla.noaa.gov/buoy.html">http://www.nwsla.noaa.gov/buoy.html</a>	805-988-6610
San Diego	<a href="http://www.wrh.noaa.gov/sgx">http://www.wrh.noaa.gov/sgx</a>	858-675-8700

## APPENDIX A, continued

	Web Address	Phone
Other Measured Currents and Wind Data Sources		
UC San Diego	<a href="http://sdcoos.org/index.php">http://sdcoos.org/index.php</a>	
Scripps	<a href="http://facs.scripps.edu/surf/weatherbody.html">http://facs.scripps.edu/surf/weatherbody.html</a>	
<b>Regional Response Team (Region 9)</b>	<a href="http://www.rrt9.nrt.org/">http://www.rrt9.nrt.org/</a> (tentatively will change in 2009)	
Coast Guard:	<a href="http://www.uscg.mil/D11/">http://www.uscg.mil/D11/</a>	
<b>Command Center</b>		510-437-3700
Captain Douglas Kaup: (RRT 9 Co-Chair)		510-437-5754
Susan Krala: Coast Guard RRT Coordinator		
Environmental Protection Agency:		
Daniel Meer (RRT 9 Co-Chair)		415-972-3132
Kay Lawrence (EPA alternate)		
Bill Robberson (EPA RRT Coordinator)		415-972-3072
Pager		800-759-8888 pin 2832870
Department of Interior:	<a href="http://www.doi.gov/">http://www.doi.gov/</a>	
Patricia Port (DOI representative)		510-817-1476
John Perez (alternate)		510-817-1477
Department of Commerce:	<a href="http://response.restoration.noaa.gov/">http://response.restoration.noaa.gov/</a>	
Jordan Stout (primary representative)		206-321-3320
Doug Helton (alternate)		206-890-7760
State Office of Spill Prevention and Response	<a href="http://www.dfg.ca.gov/ospr/">http://www.dfg.ca.gov/ospr/</a>	
Yvonne Addassi (primary representative – Marine)		916-324-7626
Office		916-864-4906
Mobile		916-956-1162
<b>National Marine Sanctuaries</b>		
<u>Channel Islands</u>	<a href="http://channelislands.noaa.gov/">http://channelislands.noaa.gov/</a>	
24-hour pager		877-982-2617
Sanctuary Office		805- 966-7107
Ben Waltenberger		805-729-3082
Chris Mobley, Sanctuary Superintendent		805-259-6540
Andrea Hrusovsky		805-729-2388

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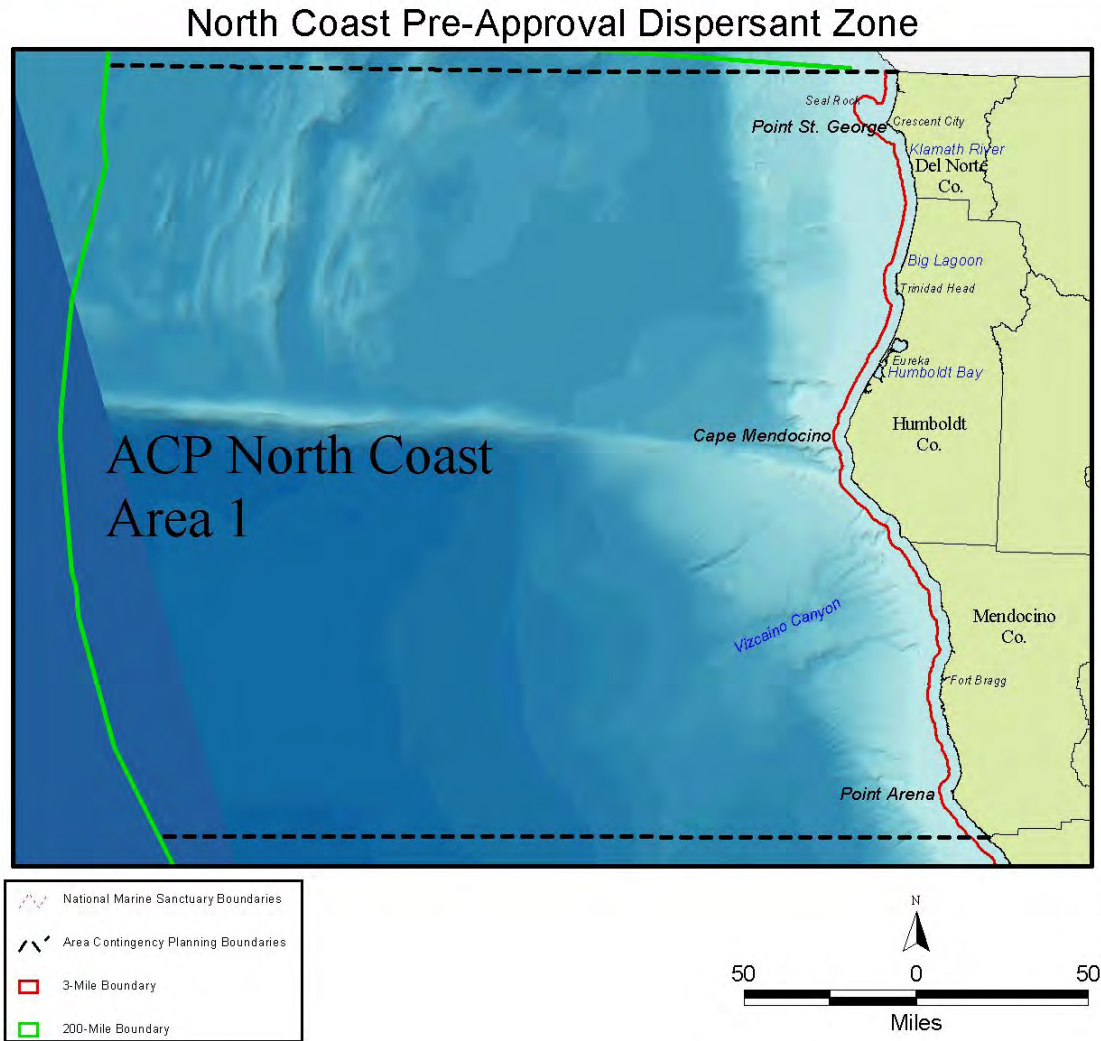
	<u>Web Address</u>	<u>Phone</u>
<u>Monterey Bay</u>	<a href="http://montereybay.noaa.gov/">http://montereybay.noaa.gov/</a>	
24-hr pager		888-902-2778
Main office phone		831-647-4201
<u>Gulf of the Farallones &amp; Cordell Bank</u>	<a href="http://farallones.noaa.gov/">http://farallones.noaa.gov/</a>	
Main office phone		415-561-6622
Superintendent: Maria Brown		415-561-6622 x 301
<u>NMS Washington, D.C.</u>		
Lisa Symons (pager)		800-218-1232
<b>RRT10 – Contact through the Command Center</b>		206-220-7001.
<b>California Department of Health Services</b>	<a href="http://www.dhs.ca.gov/home/contactinfo/programcontacts.html">http://www.dhs.ca.gov/home/contactinfo/programcontacts.html</a>	
Division of Drinking Water and Environmental Management		916-449-5577
Environmental Health Investigations Branch		510-622-4500

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## APPENDIX B

### DISPERSANT ZONE CHARTS AND REGIONAL WILDLIFE RESOURCE SUMMARIES

#### B.1 North Coast



**The North Coast dispersant use pre-approval area includes all waters seaward of the 3-mile state waters line (shown in red) and shoreward of the 200-mile line (shown in green). Areas inside state waters or within 3 miles of the California-Oregon border are “RRT Approval Required”; RRT approval will be case-specific.**

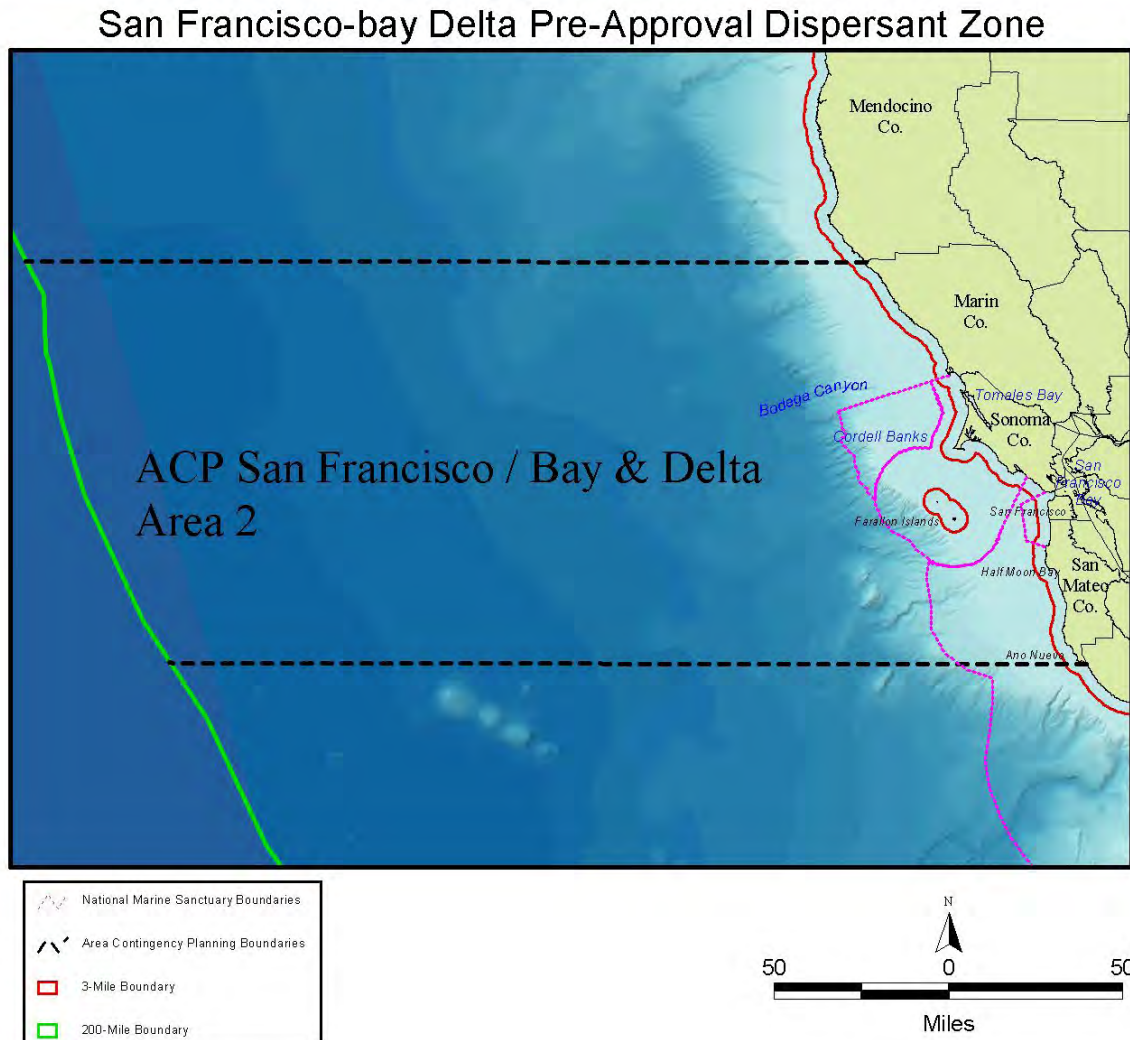
Offshore sea birds are seasonally concentrated in the areas off Point Arena, Cape Mendocino and Point St. George. These include phalaropes, auklets, petrels, shearwaters, fulmars, gulls and murrelets. Loons, grebes, endangered brown pelicans and marbled murrelets commonly occur inshore. Recent oil spills in the Humboldt Bay region have demonstrated that common murrelets and marbled murrelets are very susceptible to spilled oil. Shore birds, including the endangered western snowy plover, are also at risk should spilled oil reach the shore.

Many marine mammal species are potentially at risk, including several species of cetaceans (whales, dolphins, porpoises) and pinnipeds (seals and sea lions). Endangered cetaceans include blue, fin, humpback and sperm whales. Heavy oiling of the intertidal and upland areas of the coast can threaten harbor seal, Stellar sea lion and elephant seal pups.

Sensitive marine mammal areas include the slopes and offshore waters over Mendocino Ridge, the Vizcaino Canyon fan (used seasonally by northern fur seals), the Stellar sea lion rookeries at Cape Mendocino and Seal Rock, and the sea lion and harbor seal haul outs on St. George Reef and Trinidad Head. In addition, the waters near St. George Reef, the Klamath River mouth, and Big Lagoon near Trinidad Head support year-round populations of gray whales.

As oil comes ashore, the rocky intertidal habitat, as well as wetlands and mud flats adjacent to river mouths, are at significant risk both from the beached oil and from most of the cleanup procedures used to remove the oil. Of special concern in the marsh/wetland areas are the many species of resident or visiting birds, mammals, young-of-the-year endangered Coho salmon and steelhead trout.

## B.2 San Francisco-Bay Delta



**The San Francisco-Bay Delta dispersant use pre-approval area includes all waters seaward of the 3-mile state waters line (shown in red), shoreward of the 200-mile line (shown in green) and outside the Gulf of the Farallones, Cordell Banks, and Monterey Bay National Marine Sanctuaries (shown in magenta). Areas inside state waters or a National Marine Sanctuary are “RRT Approval Required”; RRT approval will be case-specific.**

The offshore regions of the area are some of the most productive along the entire west coast. At least 11 species of sea birds are known to breed in the area including common murres, two species of auklets, storm petrels, tufted puffins, pigeon guillemots, and two species of cormorants. In addition, an additional 35 species of sea birds are seasonal visitors to the region (USGS, 2000). Several species of birds occur inshore, including the endangered marbled murrelet.

Recent oil spills in the San Francisco region have demonstrated that both common murres and marbled murrelets are very susceptible to spilled oil. Shore birds, including the endangered western snowy plover, are also at risk should spilled oil reach the shore.

The offshore area is also a haven for marine mammals. At least 33 species of marine mammals have been reported for the region, many of which are federally listed as endangered or threatened. Endangered species include the blue, humpback, fin, sei, right and sperm whales; threatened species include the Stellar sea lion, Guadalupe fur seal and the California sea otter.

Most of the marine mammals are potentially at risk from spilled oil. In addition, heavy oiling of the intertidal and upland areas of the coast and Farallon Islands will threaten harbor seal, Stellar sea lion, northern elephant seal and northern fur seal pups.

The most sensitive regions of the waters off the San Francisco Area are the highly productive upwelling zones and shelf areas where both sea birds and marine mammals congregate in the spring and summer months to feed. These regions include Bodega Canyon, Cordell Banks, the region between Point Reyes and the Farallon Islands, and the shelf break off the most northern of the Farallon Islands.

As oil comes to shore, the rocky intertidal habitat, as well as wetlands and mud flats adjacent to river mouths, are at significant risk not only from the beached oil, but also from most of the cleanup procedures used to remove the oil. Of special concern in the marsh/wetland are many species of birds and mammals that inhabit these areas, as well as the potential for impacts to the young-of-the-year of the endangered Coho salmon and steelhead trout that may be residing in the area.